Miscellaneous

Version 5.3

Corrected, Updated, Lighter

PLAB 1 Keys is for PLAB-1 and UKMLA-AKT (Based on the New MLA Content-Map)

With the Most Recent Recalls and the UK Guidelines

ATTENTION: This file will be updated online on our website frequently!

(example: Version 2.6 is more recent than Version 2.5, and so on)

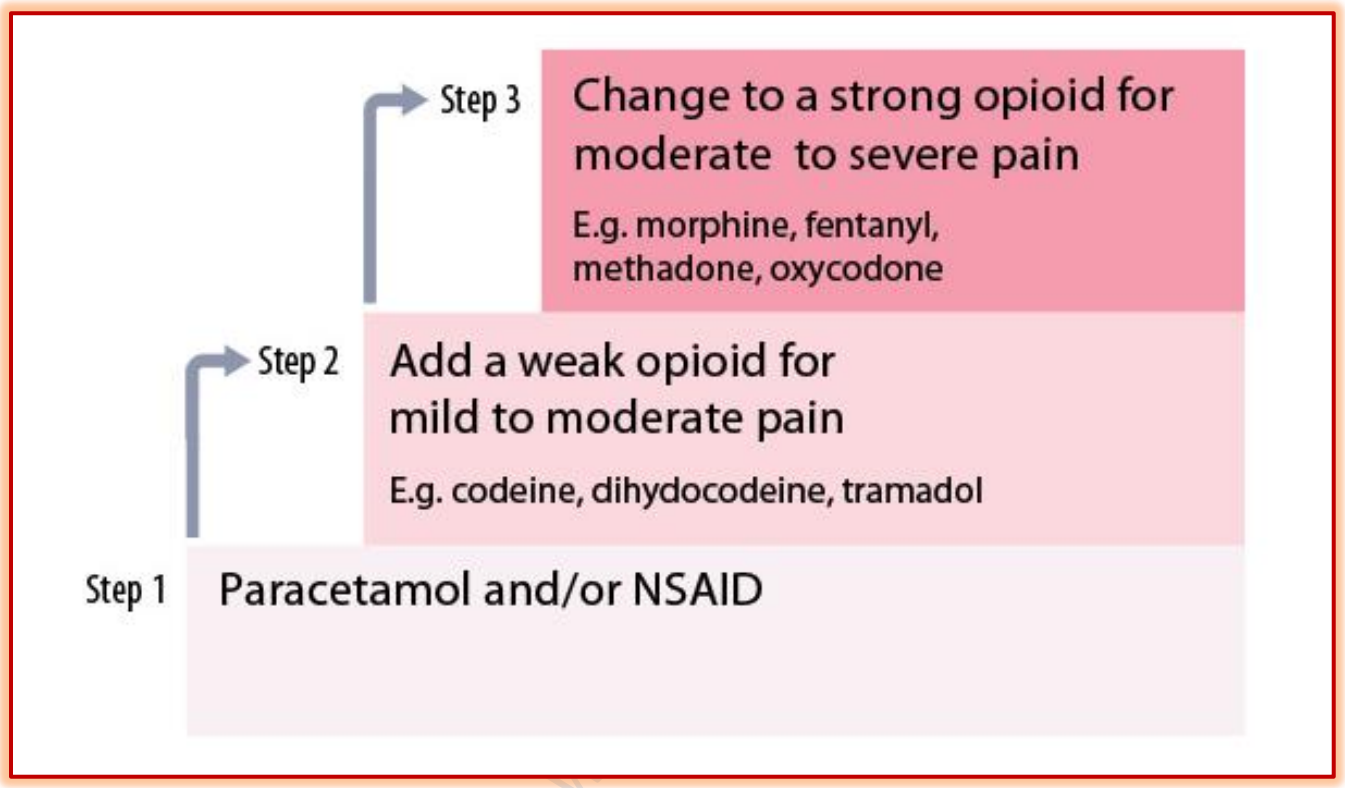
PLAB1KEYS.COM is BEST FOR PLAB 1 (+) UKMLA - AKT

Some IMPORTANT scattered notes Mainly on

Oncology, Radiology, Breast Surgery, Anaesthesiology, Perioperative, Human Factors and Quality Improvement

Key 1

Analgesic Ladder:



In controlling pain due to **vertebral metastasis** (e.g. from breast, prostate)

All steps might be consumed (Paracetamol, NSADs, Morphine). This is because the **lower vertebral pain** due to metastasis is usually very severe.

◙ **What would be prescribed as adjuvant if there is still moderate to severe pain?**

→ **Radiotherapy**

◙ **If it is inappropriate to use Radiotherapy, or if used but failed to manage the pain?**

→ **Bisphosphonates**

◙ **What if the pain is neuropathic in nature? "Shooting, electric shock like, Burning, Paraesthesia"**

→ **Gabapentin or Amitriptyline**

Key 2

Analgesics Ladder

◙ **Simple Analgesics** → NSAIDs (Diclofenac), Aspirin, Paracetamol.

◙ **Weak Opioids** → Codeine, Tramadol.

◙ **Strong Opioids** → Morphine, Fentanyl, Diamorphine, Oxycodone.

◙ **Epidural Nerve Block**.

♠ **Bone pain due to metastasis** → Radiotherapy.

♠ **Neuropathic pain** → Gabapentin, Amitriptyline, Pregabalin.

NOTE:

After an Open surgery, give → **Patient controlled analgesia with Morphine** (it can be weaned off later).

Key 3

Quick Important Collection

♠ Bone pain due to bone metastasis → **Radiotherapy**.

No full response? → add **Bisphosphonate** **e.g. Zoledronic acid**

♠ Neuropathic pain → **Gabapentin**, **Amitriptyline**, **Pregabalin**, **Duloxetine**

♠ Visceral pain → **Antispasmodics** (e.g. **Mebeverine**).

♠ Capsular pain (liver) → **NSAIDs** (e.g. **Ibuprofen/ Naproxen**).

♠ Muscle Spasm → **Baclofen** **OR** **Diazepam**.

♠ Trigeminal neuralgia → **Carbamazepine = Anticonvulsant**

♠ Intractable hiccup due to liver metastasis → **Metoclopramide**

Liver metastasis → **peripheral cause** of hiccup (gastric stasis and dilatation → irritation of vagus nerve), (Diaphragmatic irritation by liver metastasis → irritation of phrenic nerves). These are **peripheral causes of Hiccup** → give **Metoclopramide**.

♠ **Intractable hiccup due to Central cause (e.g. Cerebral Lesion)** → **Chlorpromazine/ Haloperidol/ Midazolam**

♠ **Constipation secondary to opioids** → **Senna (Stimulant Laxatives)**.

♠ **Vomiting secondary to opioids** → **Metoclopramide**.

♠ **Vomiting secondary to ↑ ICP** → **Cyclizine**.

♠ **Itching due to jaundice** → **Cholestyramine**.

Very Important: Anti-emetics for Nausea and Vomiting

◙ Anti-emetic in renal failure/ Hypercalcemia (metabolic cause) or Drug or Toxin induced vomiting

→ **Haloperidol**. (**1st line**)

◙ However, if there is associated **Parkinson's disease**, Haloperidol is contraindicated! Instead of Haloperidol, we use instead:

→ **Levomepromazine**. (**2nd line**)

(***Never use Haloperidol or Metoclopramide in patients with Parkinson's***)!

◙ Anti-emetic due to ↑ ICP (e.g. brain metastasis, intracerebral tumour e.g. glioblastoma) or vomiting due to bowel obstruction

→ **Cyclizine**.

◙ Anti-emetic due to Chemotherapy, Radiotherapy

→ **Ondansetron**.

◙ Post-operative intractable Nausea and Vomiting

→ **IV Ondansetron**

◙ Anti-emetics in Hyperemesis gravidarum (the first step is IV fluids)

√ **1st line**: "**zine**" family e.g. **Cyclizine, Promethazine**

√ **2nd line**: **IV Metoclopramide**, **Ondansetron**

√ **3rd line**: Steroids

◙ Vertigo (e.g. Meniere's/ BPPV/ Vestibular neuritis)

→ **Buccal Prochlorperazine**.

Key 4

Brain metastasis → ↑ Intracranial pressure → Nausea, vomiting, headache…etc.

♦ Give "**Dexamethasone**" i.e., glucocorticoids (**to shrink the peri-lesional oedema and thus alleviate the increased intracranial pressure symptoms**). √

♦ Give "**Cyclizine**" for nausea and vomiting. (**The best anti-emetic for ↑ ICP**).

√ Dexamethasone is the preferred glucocorticoids in intracerebral edema and the symptoms tend to improve within several hours after administration.

√ The usual dose → 4 mg, 4 times a day (PO or IV).

Key 5

Superior Vena Cava Obstruction

Superior vena cava (SVC) obstruction is an oncological emergency caused by compression of the SVC. It is most commonly associated with lung cancer. Another cause is Lymphoma.

◙ Features

√ **Dyspnoea** (SOB) is the most common symptom.

√ **Swelling of the face, neck and arms** - conjunctival and periorbital oedema may be seen.

√ Facial plethora.

√ Headache: often worse in the mornings.

√ Visual disturbance.

√ Pulseless jugular venous distension

(**distension of the veins of neck and upper chest**).

◙ Causes

♦ Common malignancies: non-small cell lung cancer, lymphoma

♦ Other malignancies: metastatic seminoma, Kaposi's sarcoma, breast cancer

aortic aneurysm

- Mediastinal fibrosis
- Goitre
- SVC thrombosis

◙ Management

√ General: dexamethasone, endovascular stenting.

√ Treatment of the cause.

Example,

A patient developed **shortness of breath** and **headache** for several weeks. He has **swellings of his arms and face**, and **distension of his neck and upper chest veins but not pulsatile** which have been worsening over weeks. O/E, he has **facial plethora**, intermittent headaches, no audible stridor or laryngeal oedema.

√ The likely Dx → **SVC Obstruction**.

√ The Most appropriate Investigation → **CT Chest WITH Contrast**.

√ The most appropriate **immediate/ next** management → **Dexamethasone**.

√ The **treatment of choice** → **Endovascular stenting of the obstructed SVC**.

Key 6

A 44-YO female is referred to the surgical ward with right upper quadrant pain for 2 days. O/E → yellow conjunctiva, tenderness over the right upper quadrant, tachycardia and fever of 39 C. The labs are as follows:

HB normal, WBC 21 (high), bilirubin 94 (high), Alkaline phosphatase 460 (high)

AST 73 (high), Albumin normal, CRP 277 (high)

- The likely diagnosis → **Ascending Cholangitis**.
- The Next Ix → **Abdominal Ultrasound**

Remember:

Acute "Ascending" Cholangitis:

- ***Charcot's Triad*** (**frj**) → **Fever**, **Right upper quadrant pain**, **Jaundice**. **HL** ± (**H**ypOtension and **L**eucocytosis).
- ***Investigations*** → Ultrasound and Blood cultures.

Key 7

Hx of cancer (esp. **Breast**, **Prostate** or myeloma)

+

Backpain

+

Neurological Symptoms (e.g. **Urinary incontinency**, **Lower Limb Weakness**)

→ *Suspect* *MSCC* **(Malignant Spinal Cord Compression)**

→ **Urgent MRI of the whole Spine**.

Key 8

A 38 YO man presents with a 2-year history of soft swelling over the right scapula. He notices **it has slowly grown in size** over the past 6 months. O/E: Painless, non-tender, 4 cm lump over the right scapula, it is not fixed to the underlying structures, there is no erythema nor tenderness.

◙ The Likely Dx → **Lipoma**.

◙ The most appropriate Ix → **Ultrasound**.

A 39 YO man presents with 2-year history of soft swelling over the right scapula. He claims that it **has not grown in size**. O/E: Painless, non-tender, 4 cm lump over the right scapula, it is not fixed to the underlying structures, there is no erythema nor tenderness.

◙ The Likely Dx → **Lipoma**.

◙ The management → **Reassure**

√ Lipomas are benign soft-tissue masses composed of fatty tissues enclosed by a fibrous capsule.

√ They are soft, rubbery in consistency, mobile, painless, grow very slowly.

√ If a patient presents with **typical lipomas** that are **not growing** and **not interfering with life** → **Reassure**.

√ If there are **doubts that it is Liposarcoma** (e.g. **> 5 cm**, **↑ in size**, **painful**, **deep anatomical location**) → **perform Ultrasound.**

√ If the result of US is suspicious → **refer for MRI ± Surgical removal**

Key 9

An **elderly** + **Multiple fractures** + T-score of **-2.5** or **lower (e.g. -2.7)**

→ **Osteoporosis**.

- First line management → **Bisphosphonates**

  (e.g. Alendronate ''Alendronic acid'' **or** risedronate **or** zoledronic acid).

- **HRT** (Hormonal Replacement Therapy) should **not** be given as a first line management as it has serious side effects such as *Venous Thromboembolism* (VTE), *Stroke*, *Breast cancer*, *coronary diseases*.

- ***T-Score interpretation***: assessed by **DEXA scan** and reflects Bone Mineral Density (BMD):

-1 or higher → **Normal**

Between -1 and -2.5 → **Osteopenia**

-2.5 or lower → **Osteoporosis**

Very Important notes,

♦ After prescribing **oral bisphosphonate** (e.g. Alendronic Acid)

→ Inform the patient that dyspepsia and reflux are common in the first month of treatment and often improve with continuous use.

♦ To reduce severity of these symptoms → Take the oral bisphosphonate while in an **upright position** and maintain an upright position for a minimum of 30 minutes after taking the medication.

♦ **Swallow** the pills with a glass of plain water, do not suck or chew them (risk of oropharyngeal ulcers).

♦ In osteoporosis patients who are **already on alendronate** → **DEXA** scan (for bone mineral density) should be checked **every 3 to 5 years**.

♦ In osteoporosis patients who have **stopped taking alendronate** → **DEXA** scan (for bone mineral density) should be checked **after 2 years**.

♦ 2 forms of oral alendronic acid dosing:

→ 70 mg **once weekly OR** 10 mg **once daily**. There is **no monthly regimen**.

Key 10

◙ There is **no C8 vertebra**, it is just a **nerve root** that emerges below C7.

◙ Also:

√ Median nerve: C5-**T1**

√ Ulnar nerve: C8-**T1**

These are roots, not vertebrae.

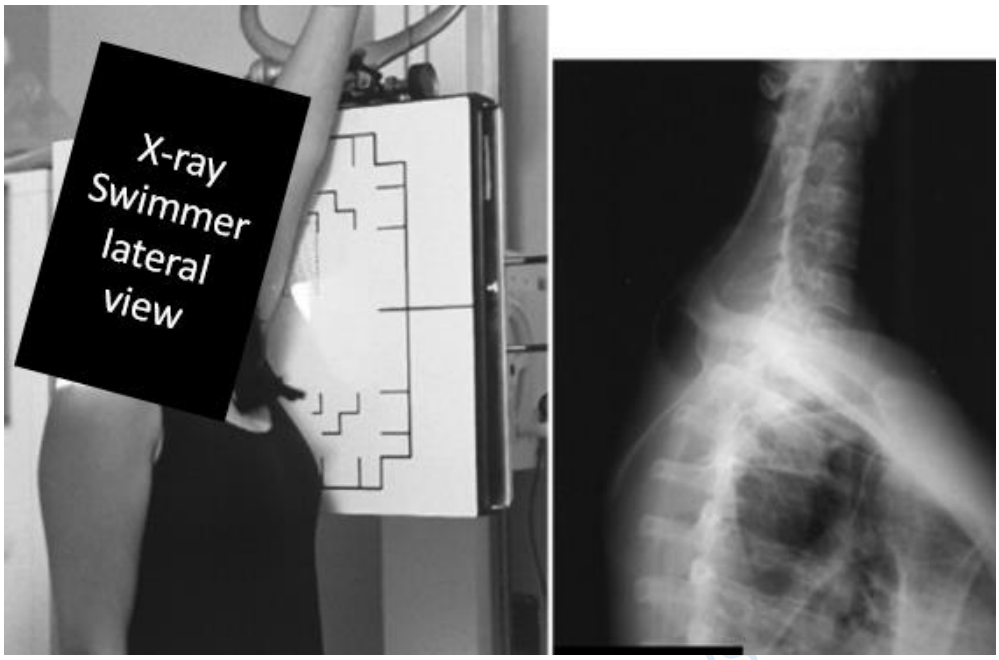
◙ Both **Median** and **Ulnar** nerves are responsible for the **weakness of the hands.**

◙ **Important**: **On a lateral neck X-ray, the lowest level needed to be seen after a neck injury is** → **C7-T1**

◙ In a suspected Cervical fracture, we need to get X-ray of all cervical vertebrae from **C1 to C7**

◙ Sometimes, [**C7-T1 junction**] does not appear on **AP**, **Lateral**, **Open-moth odontoid** (**the peg view**) X-rays. Hence, ordering what is called (**Swimmer Lateral view**) is required.

◙ Again, if this does not show C7-T1 → order **CT Scan**.



Key 11

A 34 YO female presents complaining of heavy menstrual bleeding (menorrhagia). She has been trying to conceive for the past 2 years but has been unsuccessful. A transvaginal Ultrasound reveals a **thick-walled unilocular cyst** with acoustic enhancement with diffuse homogenous **ground-glass echoes** located on the left ovary.

The likely Dx → **Ovarian Endometrioma**

Ultrasound Findings (important √)

◙ **Hydatidiform mole**	• Snowstorm appearance of mixed echogenicity • Bilateral cystic masses (Large theca lutein cysts)
◙ **PCOS**	Multiple follicles/ cysts
◙ **Dermoid Cyst**	• Iceberg tip sign • Flat-fluid level • Mostly, unilocular • Dermoid mesh
◙ **Ovarian Endometrioma**	• Ground-glass appearance • Thick wall unilocular cyst • Chocolate cyst
◙ **Ovarian Teratoma**	• Echogenic tubercle projecting into cyst lumen
◙ **Tubo-ovarian abscess**	**Multilocular**, separations, irregular thick walls Echogenic debris in the pelvis

Key 12

Tricyclic Antidepressant Overdose (e.g. Amitriptyline)

Dilated pupils – Dry mouth – Dry flushed skin – Drowsiness – Hypotension – Urine retention – Severe Sedation – Tachycardia - Widened QRS – Severe Acidosis

- **ECG monitoring is essential**: **Widened QRS**, PR, QT and **Broad complex tachycardia.**

2 popular stems in the exam:

1) A **child** taking his grandparent's medication and presented drowsy and lethargic ± with myoclonic twitches.
2) An **elderly** with terminal illness and wants to end his life, presented with dry skin and mouth, and dilated pupils.

◙ **The most important immediate action → ECG Monitoring**

◙ **As the patient is in severe Metabolic Acidosis (pH far < 7.35)**

→ **Give IV fluid Bolus (0.9% NaCl) + IV Sodium Bicarbonate 50 ml of 8.4%**

Careful for THE DOSE!

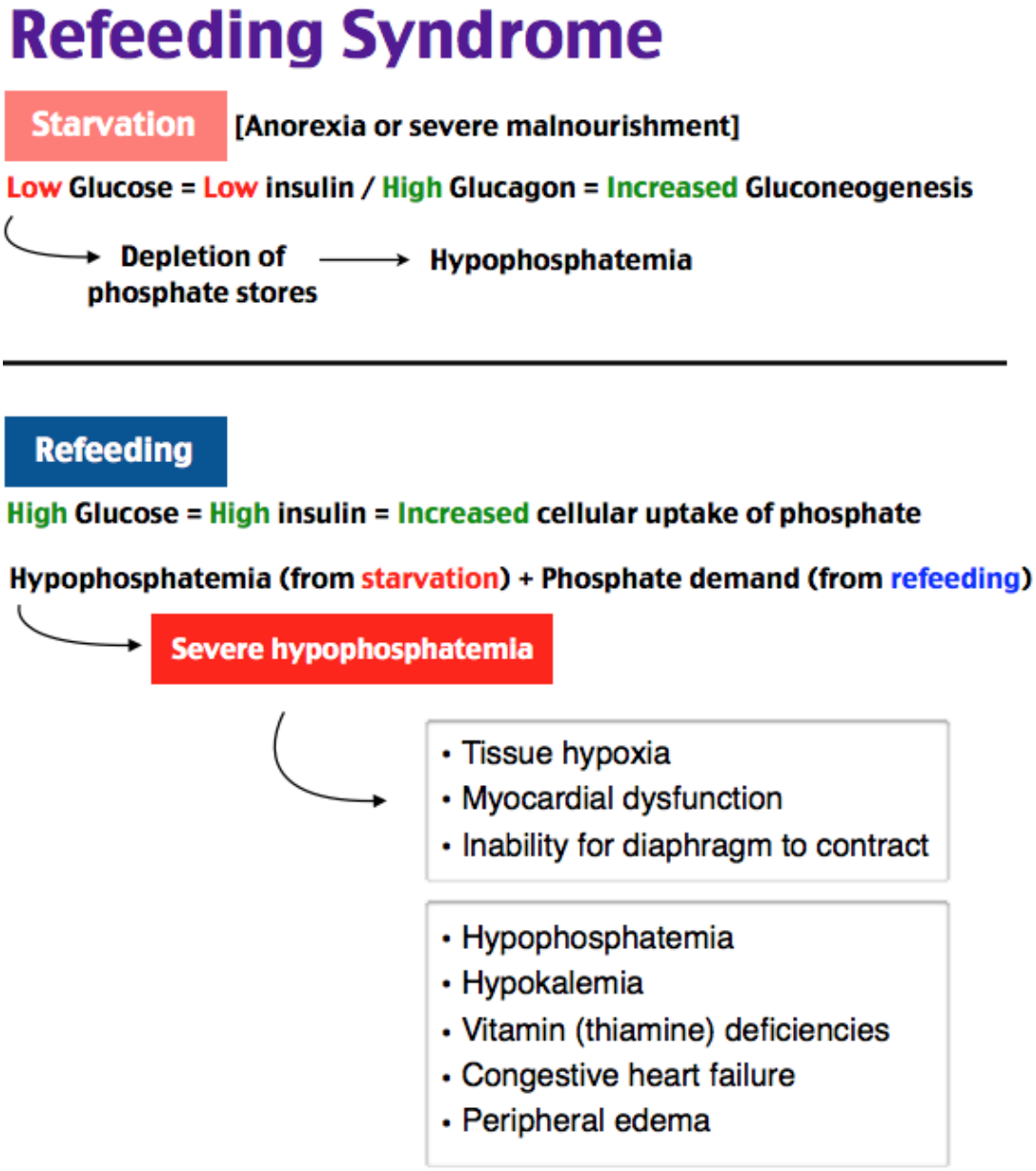
N.B. aim for pH of 7.5-7.55!

Key 13

Refeeding Syndrome

A 22 YO ♀ with a BMI of 12 kg/m^2 was admitted to the medical ward for feeding through a nasogastric tube. What electrolyte abnormality is expected?

→ **Hypophosphatemia** (**↓ Phosphate**)



◙ Refeeding syndrome is a syndrome consisting of metabolic disturbances that occur as a result of reinstitution of nutrition to patients who are starved, severely malnourished or metabolically stressed.

◙ When too much food and/or liquid nutrition supplement is consumed during the **initial four to seven days of refeeding**, this triggers synthesis of glycogen, fat and protein in cells, to the detriment of serum concentrations of **potassium**, **magnesium** and **phosphorus** (**Consumed → ↓**).

◙ Cardiac, pulmonary and neurological symptoms can be signs of refeeding syndrome. The low serum minerals, if severe enough, can be fatal!

◙ **To avoid refeeding syndrome** →

Slow feeds + Give Supplements of Potassium, Magnesium and Phosphate.

Key 14

Unilateral Loin/ Flank Pain

• +ve HCG in urine **or** Pregnant (**Amenorrhea**)→ suspect **ectopic pregnancy**

• The pain started centrally then went to the right iliac region, + Nausea and vomiting, ± Tenderness and rebound tenderness → **Appendicitis**.

- -ve HCG, the pain radiates from loin to groin ± ↑ WBCs and CRP ± vomiting

→ **Ureteric Colic** (a stone at the lower part of a ureter).

Ureteric pain is usually severe enough to make a patient writhing and twisting due to intense pain.

Key 15

◙ A 22 YO ♀ with a BMI of 12 kg/m^2 was admitted to the medical ward for feeding through a nasogastric tube. What electrolyte abnormality is expected?

→ **Hypophosphatemia** (**↓ Phosphate**)

[Refeeding Syndrome]

Key 16

Regarding death certificate

• In the **1a part** of the death certificate, write the "**Disease or condition directly leading to death**" **clearly** and **specifically**.

Examples

◙ Write → [**Small cell carcinoma of the main right bronchus**] instead of just "~~Lung cancer~~".

◙ Write → **Inferior Myocardial Infarction**

Instead of "~~coronary thrombus/ sudden drop of circulation/ Acute coronary syndrome…etc~~"

◙ Write → **Pneumonia**

Instead of "~~lung infection/ respiratory failure~~"

• In the **1b part** of the death certificate, write the "**Disease or condition directly leading to 1a part**".

Key 17

◙ An elderly man with dementia, recurrent visits to the hospital for **bruises** in the **face**, **head** and **forearms**.

→ Suspect "**non-accidental injury**".

Someone is abusing this old man as the bruises are in suspicious sites.

If the cause was "recurrent falls" for instance, the bruises would have been over the hip, knee or shoulder joints, not in the face!

Key 18

◙ **before commencing Lithium, order:**

- **Thyroid Function Tests**. And:
- Kidney Function Tests.

(li**TH**ium) → **TH**yroid function tests.

◙ **Before prescribing Amiodarone**

→ Serum **Electrolytes**

and **Urea** measurements should be obtained.

Key 19

An immunocompromised elderly patient with previous history of PE and MI. Taking Medications for COPD for 10 years. Complained of breathlessness and Coughing. Pneumonia is diagnosed and died after few hours. X-ray showed Multiple patchy Opacities. What will be filled in the 1a part of the death certificate?

A. COPD

B. **Pneumonia**

C. Lung Failure

D. Chest Infections.

Regarding death certificate

• In the **1a part** of the death certificate, write the "**Disease or condition directly leading to death**" **clearly** and **specifically**.

Examples

◙ Write → [**Small cell carcinoma of the main right bronchus**] instead of just "~~Lung cancer~~".

◙ Write → **Inferior Myocardial Infarction**

Instead of "~~coronary thrombus/ Cardiac arrest/ Cardiovascular event/ Acute coronary syndrome…etc~~"

◙ Write → **Pneumonia of the left lower lobe**

Instead of "~~lung infection/ respiratory failure~~"

• **AVOID** **vague terms** and **modes of dying** such as (Respiratory distress/ Cardiac arrest/ Cardiovascular event/ Chest infections/ Cerebrovascular event).

• Never use abbreviations!

• Write the **date of death using** (**Words**) NOT (Figures).

Example

◙ Write → the **Fourth day of July** (instead of 04/07).

Key 20

√ **Thyroglobulin (Tg)** levels are very helpful thyroid cancer markers. They may indicate recurrent or metastasis of thyroid cancer after a successful removal of the thyroid (during follow-up).

√ They can be used after thyroidectomy for a thyroid cancer.

√ (But they are not helpful in the Dx of thyroid cancer).

Key 21

A patient with Hx of metastasized colorectal cancer presents with persistent vomiting of fecal content, colicky abdominal pain. His abdomen is distended and there are high-pitched sounds. What is the most appropriate management?

√ Initial step → Insert **Nasogastric Tube (NGT)** "for decompression".

√ Definitive/ most palliative step → **Stoma**

Vomiting of fecal contents → NGT.

Key 22

A 50 YO man has a Hx of productive cough and fever. He also as left chest pain on breathing. On chest examination, there is dullness on percussion of the left lower lobe along with absent breath sounds. What is the most likely chest X-ray finding?

→ **Pleural effusion**.

He has likely suffered from pneumonia which has led to pleural effusion.

√ Absent breath sounds + Dullness on percussion → Pleural effusion.

√ Inspiratory crackles + Dullness on percussion → Consolidations.

Key 23

◙ A **teratoma** is a tumor made up of several different types of tissue, such as hair, muscle, teeth, epithelium, cartilage or bone.

◙ They typically form in the ovary, testicle, or tailbone and less commonly in other areas.

◙ Symptoms may be minimal if the tumor is small.

◙ A testicular teratoma may present as a painless lump.

◙ Complications may include ovarian torsion, testicular torsion, or hydrops fetalis.

◙ In males, teratoma is always malignant, while in females, it is usually benign.

Testicular teratoma

Key 24

◙ **Capecitabine** is a chemotherapy drug used in many types of cancer (e.g. breast and colon).

◙ Among its important side effects that it causes profuse **diarrhea**.

◙ Patients who are on Capecitabine and develops diarrhea require fluid replacements and anti-diarrheal medications e.g. loperamide to avoid severe dehydration.

◙ If still there is profuse diarrhea and dehydration, Capecitabine should be stopped.

Key 25

◙ Prostate cancer commonly metastasizes to the vertebrae and pelvis leading to → Hypercalcemia (↑ serum Ca^{++}).

◙ Hypercalcemia can present with: depression, lethargy, constipation, polyuria, polydipsia.

◙ In a patient with cancer "particularly prostate and breast cancer" who develops such features → Serum calcium should be requested.

Key 26

A 70 YO man with a Hx of TIA "transient ischemic attack" 3 years ago presents asking about the medications he should receive on long-term basis. He has not been using any medications throughout the past 3 years. His ECG shows sinus rhythm, and his blood pressure is 135/83.

→ **Clopidogrel + Atorvastatin**

2ry Prevention (Long-term management) of Ischemic Stroke/ TIA:

√ **Control Blood Pressure.**

(The patient in stem has normal BP so he does not need a medication for BP).

√ **Statins** (for **All** patients regardless of their cholesterol baseline level).
"Atorvastatin 80 mg".

√ **Ani-platelets (or) Anti-coagulation**: (**Based on presence or absence of AF**):

• If there is **Atrial Fibrillation** → Anticoagulants: **Warfarin [or] DOAC** (**Dabigatran/ Apixaban/ Rivaroxaban/ Edoxaban**).

(The man is stem does not have AF as his ECG shows sinus rhythm. Thus, we do not use warfarin nor DOAC).

- If **No Atrial Fibrillation** → Antiplatelets: **Clopidogrel** 75 mg OD.

"remember that in "acute" ischemic stroke, aspirin 300 mg is given for 2 weeks then clopidogrel 75 mg is given for life".

Key 27

A 75 YO has an inoperable glioblastoma presents with nausea and constant head pain that awakens him at night. Head CT scan reveals enhanced lesions with surrounding edema.

The most appropriate management → **Dexamethasone**.

(**to shrink the peri-lesional oedema and thus alleviate the increased intracranial pressure symptoms**).

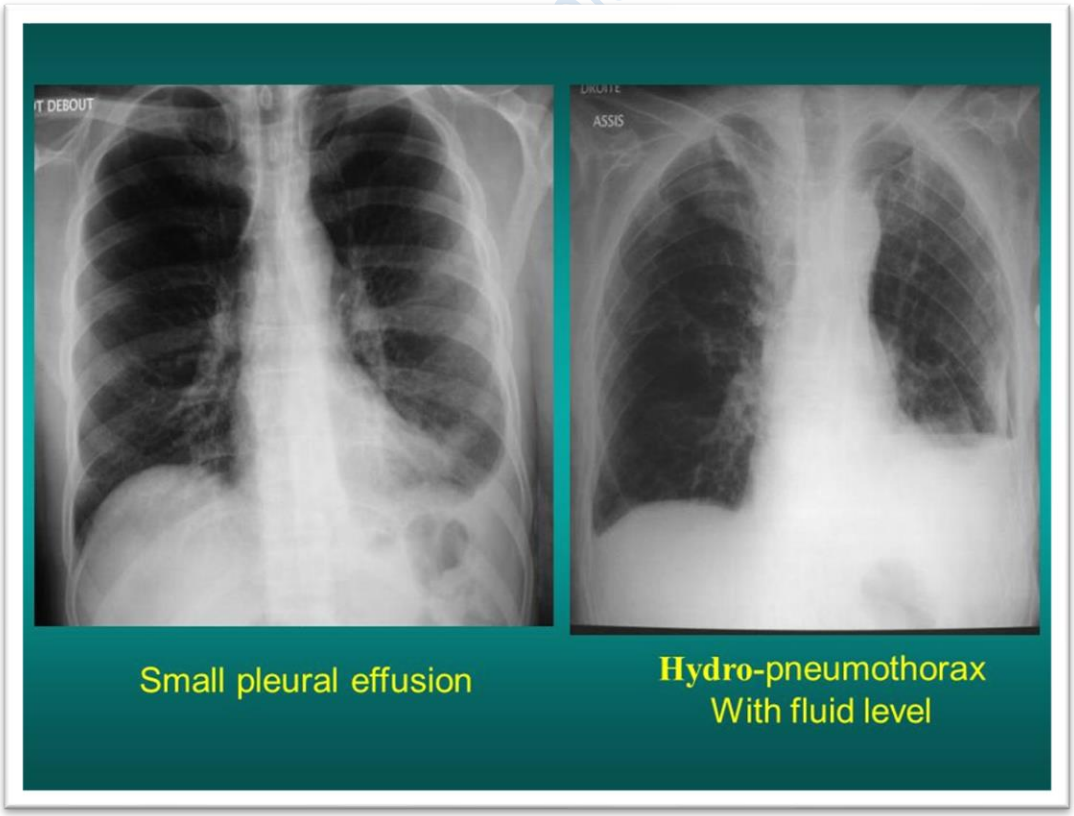
√ Dexamethasone is the preferred glucocorticoids in intracerebral edema and the symptoms tend to improve within several hours after administration.

(The usual dose is: 4 mg, 4 times a day, oral or IV).

• If there is associated vomiting, the best anti-emetic for vomiting secondary to increased intracranial pressure is → Cyclizine.

Key 28

Look at the difference between Pleural effusion and Hydropneumothorax:



Hydropneumothorax is defined as the presence of both air and fluid within the pleural space. An upright chest x-ray will show air fluid levels. The horizontal fluid level is usually **well defined** and extends across the whole length of hemithorax.

Signs and symptoms

This can be remembered by 4 'S': straight line dullness, shifting dullness, splash, sound of coin.

Causes

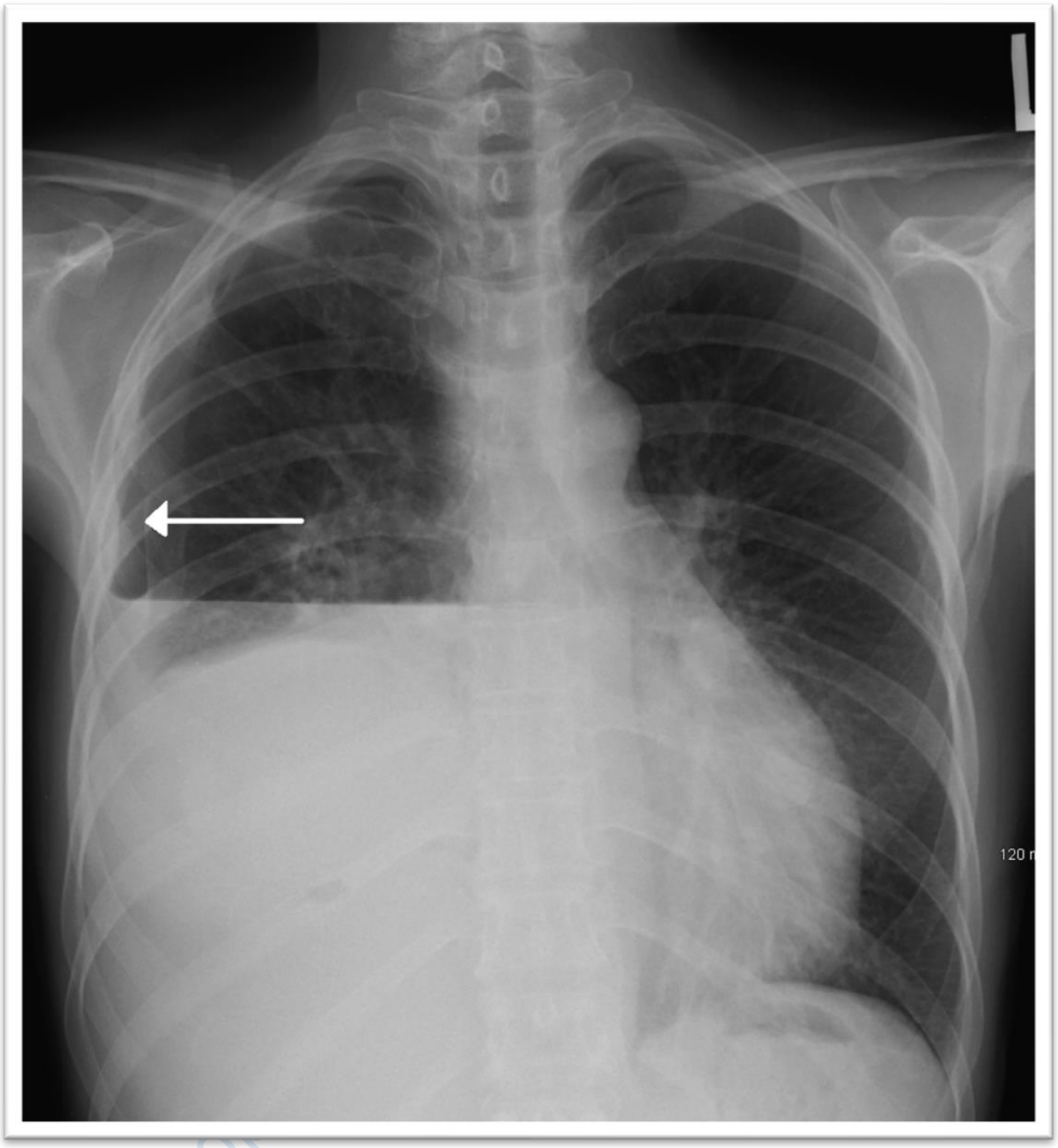
- Iatrogenic: Introduction of air during pleural fluid aspiration in effusion
- Presence of a gas-forming organism
- Thoracic trauma

Diagnosis

Diagnosis can be via CXR. CT is better to outline borders of air fluid levels, however, CT has a greater radiation exposure.

Treatment

Treatment is mostly the treatment includes ICD (intercostal drainage) of fluid and air and treatment of underlying conditions.



Hydropneumothorax – Right

Key 29

A 58 YO man presents complaining of extreme fatigue, weight loss, increased urinary frequency and thirst over the past 3 months.

His kidney function tests and liver enzymes are within normal ranges.

However, his serum calcium and ALP are abnormally elevated.

What is the most likely diagnosis?

Fatigue, weight loss, high ALP and Ca^{++}

Think → **Metastatic bone cancer**.

Note that his thirst and polyuria are due to hypercalcemia.

Key 30

A 65 YO man presents complaining of pins and needles sensation on his fingers and hands over the past 10 days.

His examination shows reduction of pain and temperature sensation on his hands and feet and reduction of deep tendon reflexes.

His medical history includes Hodgkin's lymphoma that was diagnosed 10 months ago for which he was started on chemotherapy "vincristine" recently.

He had also been diagnosed with DM type 2 around 12 months ago. He is on metformin. His HbA1c is 51 mmol/mol.

What is the likely cause of his symptoms?

→ Chemotherapy-induced peripheral neuropathy.

Important chemotherapy drugs that can cause peripheral neuropathy to be remembered are:

Vincristine, **cisplatin**, **carboplatin**, **taxanes**.

This is not a case of **diabetes-induced peripheral neuropathy** for the following reason:

√ Although normal HbA1c is < 48 mmol/mol, the value here (51 mmol/mol) is considered a relatively **good control** in a patient on metformin. A second anti-hyperglycemic drug is only needed if his HbA1c is ≥ 58 mmol/mol.

Key 31

A 50 YO man with a Hx of laparoscopic cholecystectomy 1 year ago presents complaining of severe abdominal pain and distension for 2 days. He also has constipation for 7 days. His abdominal X-ray shows:

What is the most likely diagnosis?

→ **Small bowel obstruction**.

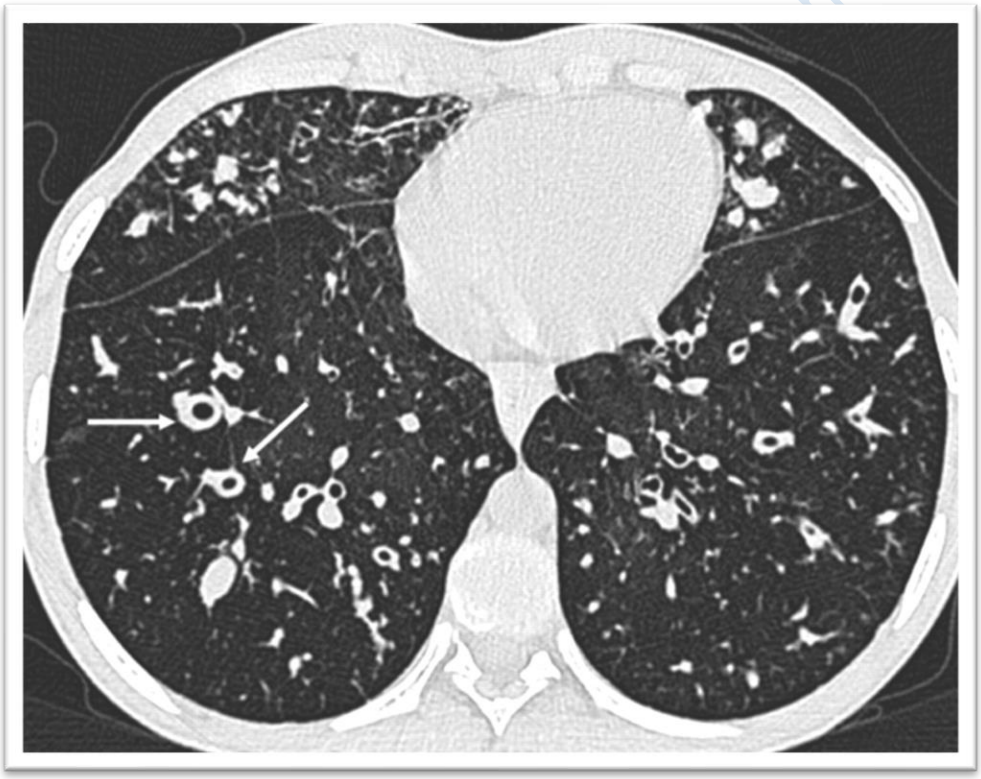
After abdominal surgery, adhesions can occur leading to small bowel obstruction (laparoscopic cholecystectomy in this case).

See the difference between small and large bowel obstruction below:

Large Bowel:	Small Bowel:
•Peripheral •Diameter ~8 cm •Presence of haustration	•Central •Diameter ~5 cm •Vulvulae coniventae •Ileum: may appear tubeless

Key 32

A 60 YO man presents with chronic productive cough and copious purulent sputum for 7 months. His O2 saturation is 90% and RR is 21/min. O/E, he has clubbing and coarse early inspiratory crackles. High resolution CT scan is ordered and shows:



The likely Dx is → **Bronchiectasis**.

HRCT (High resolution CT scan) of bronchiectasis showing → bronchial dilatation and wall thickening with ground glass opacities.

◙ Main Features:

Chronic Persistent Cough (+)

Copious Excessive Sputum (+)

Recurrent respiratory tract infections (±)

Others: weight loss, clubbing, dullness, crackles.

Suspect → **Bronchiectasis**

"Irreversible dilatation of small and medium sized bronchi"

bronchiectasis: tram-tracks, thick rings

◙ Other features that may present in a stem:

√ Chest X-ray may show Tramlines "cysts/ ring opacities"

"Chest X-ray is often normal"

√ Clubbing "drumstick-shaped fingers":

not always present, not specific.

◙ To confirm the Dx

→ **High resolution CT scan (HRCT). "important"**

Key 33

√ Around 20% of women who go for **breast cancer treatment** develop **lymphedema** usually during the first 2 years after the surgery.

√ This is because of the lymphatic system damage that occurs during the surgery.

√ It can present as upper limb swelling, tightness of the hand.

Key 34

- Sometimes, spinal anaesthesia can lead to → Headache
- This is called → **post-dural puncture headache (PDPH)**.
- This is caused by → CSF leakage → leading to ↓ intracranial pressure.
- So, **fluid intake** is necessary to relieve this headache as it ↑ ICP.
- If the patient can tolerate orally → **observe and encourage oral hydration**.

• Note that this headache is usually self-limited within 1-week post-op.

Key 35

Management of Acute Exacerbation of COPD "important":

• **Nebulised bronchodilators:**

√ Nebulized salbutamol 5 mg.

√ Consider adding nebulised ipratropium 0.5 mg.

• **Corticosteroids:**

√ 30 mg prednisolone stat (and then should be given OD for 1-2 weeks) OR:

√ 100 mg IV hydrocortisone.

• **O2 using venturi mask:**

√ Start with FiO2 24-28% and maintain saturation between 88-92%.

• **Antibiotics**

√ Given if there is: fever, purulent sputum, signs of pneumonia, elevated CRP.

• IV aminophylline:

√ Only if no adequate response to nebulised bronchodilators.

• Non-invasive ventilation (NIV): e.g., CPAP, BiPAP:

√ If after medical treatment, there is no adequate response, and the patient develops respiratory acidosis (low pH < 7.35 and high $PaCO_2$).

√ We try to delay the need for invasive ventilation (intubate and ventilate) as it has own complications e.g., pneumonia, barotrauma, the failure to come back to the spontaneous ventilation.

√ However, invasive ventilation should be used if: NIV fails, there is respiratory arrest, there is impaired mental status, or there is a high risk of aspiration.

• Invasive ventilation (intubate and ventilate):

√ If NIV failed. (e.g., pH is < 7.26 and $PaCO_2$ is still rising despite NIV). OR:

√ If NIV is contraindicated e.g., respiratory arrest, high aspiration risk, impaired mental status.

Important notes:

- Low pH, High $PaCO_2$ → NIV.
- Normal pH, High $PaCO_2$ → Continue FiO_2 24-28% via venturi mask.

◙ Scenario (1):

A 60 YO man with Hx of chronic obstructive pulmonary disease is brough to the ER complaining of sudden onset of shortness of breath. He is using his accessory muscles to breathe and there is bilateral wheezing. His RR is 29 and O2 is 80%. He was immediately started on oxygen with FiO2 24% via venturi mask. He was given salbutamol with ipratropium and 100mg IV hydrocortisone. Chest X-ray shows bilaterally hyperinflated lungs.

After this initial treatment, his ABG shows low pH and high paCO2.

What is the most appropriate next step in management?

→ **Non-invasive ventilation**.

He has respiratory acidosis after the medical treatment. +

There are no indications for invasive ventilation such as impaired mental status, respiratory arrest. So, we go for NIV first. If failed, intubate and ventilate.

◙ Scenario (2):

A 60 YO man with Hx of chronic obstructive pulmonary disease is brough to the ER complaining of difficulty breathing and confusion. His breath sounds are quiet. His GCS is 11/15. His RR is 9 and O2 is 80%. He was immediately started on oxygen with FiO2 40% via venturi mask.

His ABG shows low pH and high paCO2.

What is the most appropriate next step in management?

→ **Intubate and ventilate (invasive ventilation)**.

His RR is 9 and his breath sounds are quiet → going to respiratory arrest.

Also, his mental status is impaired.

Therefor, intubation and ventilation is the correct answer.

Key 36

Morphine post-op → drowsiness + low RR (respiratory depression)

Think → **morphine overdose**.

Key 37

Steps of management of status epilepticus:

◙ **First Step** → **2 separate doses (10-20 minutes in between) of either**:

√ **IV Lorazepam** "**1st line in-hospital** and **if there is established IV access**". [or]

√ **Buccal Midazolam** [or] (**Rectal Diazepam**) "**If no IV access or in-community**"

If 2 separate doses of either (IV lorazepam) or (Rectal Diazepam) or (Buccal Midazolam) have been given but the seizure is still ongoing, move to step 2

◙ **Second Step** → **IV Phenytoin**

Important: Phenytoin is preferred over phenobarbital.

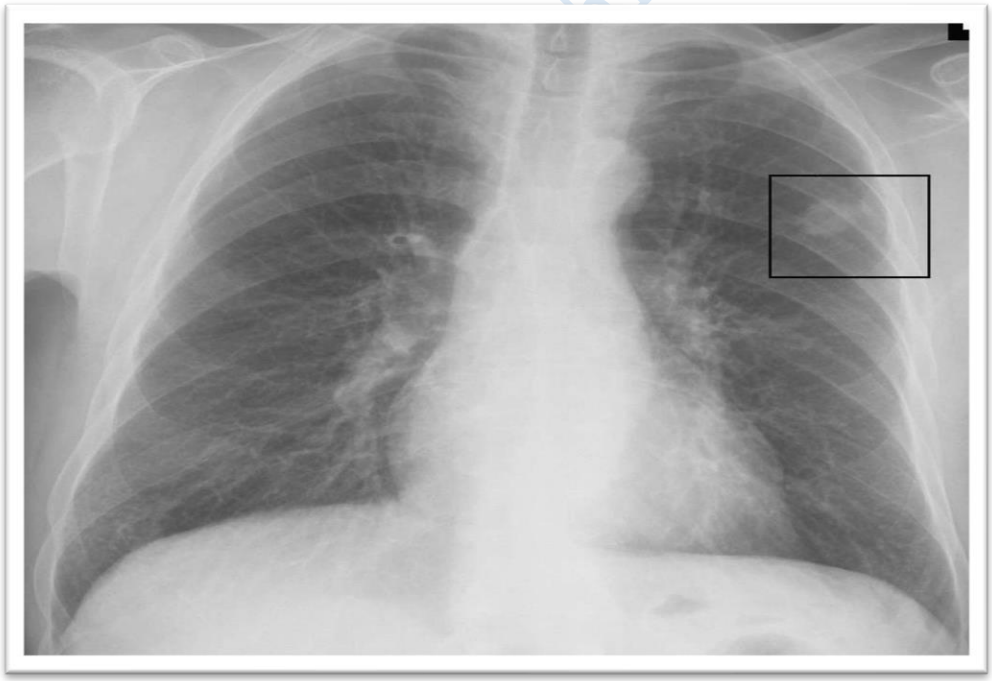
◙ **Third Step** → **Refer to ICU** → Intubation, IV Phenobarbital.

Key 38

Neck mass initial investigations → **Ultrasound + FNAC**

Key 39

60 YO man with chronic cough and hemoptysis and Hx of smoking. However, he does not have SOB or chest pain. Chest X-ray is as follows:

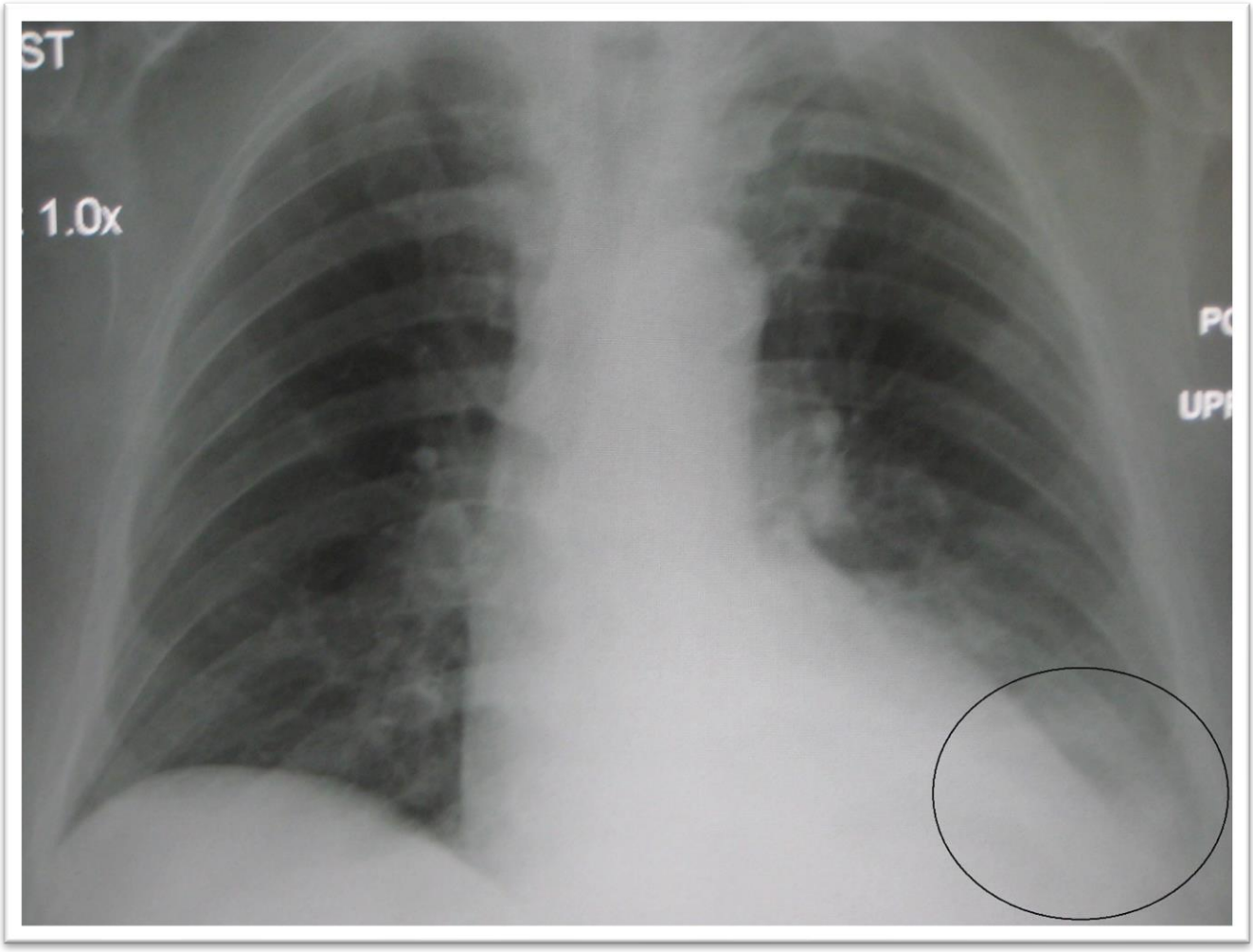


The most likely Dx → **Lung cancer**

(Chronic cough, Hemoptysis, Chronic smoking, Solitary coin lesion on X-ray).

Key 40

A 56 YO man has been complaining of cough, shortness of breath, left chest pain and fever for 3 weeks. His temperature is 38.5, his RR is 25 and his O2 sat is 92%. ECG shows normal sinus rhythm. There are crepitations and reduced air entry on the left side. Chest X-ray shows:



The most likely Dx → **Pleural effusion**.

As there is fever → there is likely an infection caused parapneumonic effusion.

Key 41

A 30 YO man, heroin addict was found on the kitchen floor unconscious. The stove gas was found to be turned on. He gained consciousness but remained drowsy and confused. His skin is flushed. His pupils are dilated. HR is 90. Among the following options, what is the most appropriate management?

A) Naloxone.
B) **Oxygen**.
C) IV fluids.
D) Dantrolene

• You may think this is a case of heroin (opioid) toxicity that needs Naloxone to be treated. However, in opioid toxicity, the pupils are constricted, not dilated like here. Also, HR would be low.

• The likely Dx here is Carbon Monoxide (CO) poisoning. It needs O2.

• CO poisoning

→ Red, pink, flushed (cherry-red) skin/ mucosa + Altered mental status.

• The Management of CO Poisoning:

- If **Conscious** → 100% O2 via a tight-fitting face mask with an O2 reservoir.

  Another valid answer → High flow oxygen.

- If **Unconscious** → Intubate and Ventilate with IPPV (Intermittent Positive-Pressure Ventilation) on 100% O2.

Note: if the patient is **confused** but **still conscious** → **high flow O2 via tight-fitting mask** (NOT intubation)!

Careful! If the patient is **hypotensive** (**SBP < 100**) and **Unconscious** → **Intubation + IPPV 100% O2**

Key 42

Of the following medications, which one needs to be stopped on the day of the surgery if the patient is going to be under general anaesthesia?

A) **Lisinopril**
B) Amlodipine
C) Beclomethasone inhaler
D) Atorvastatin
E) Omeprazole

• ACE inhibitors (e.g., lisinopril) and ARBs (e.g., losartan) need to be stopped 24 hours before surgery because they can lead to severe hypotension after the induction of GA.

Key 43

A 50 YO man is due for elective inguinal hernia repair. He takes 10 mg prednisolone daily for polymyalgia rheumatica. What should be done for the dose of prednisolone?

→ Continue the same dose preoperatively BUT double the dose for 48 hours postoperatively.

"This is to avoid adrenal insufficiency -adrenal crisis- postoperatively".

Key 44

Breast surgery is safe during pregnancy.

Do not delay breast surgery for cancer removal.

No need to terminate pregnancy for breast surgery.

◙ **If a pregnant woman is found to have breast cancer and needed surgery:**

→ Proceed with mastectomy.

The only condition where pregnancy termination is considered is when chemotherapy is indicated.

Key 45

◙ Irregular purple nodule surrounded by ring-shaped purple blue pigmentation with indistinct borders on the breast:

Think → Angiosarcoma.

Breast Angiosarcoma

Key 46

During **laparoscopy**, CO2 is usually used for **insufflation of abdominal cavity** (inducing what's called pneumoperitoneum). This is to have better visualisation. Rapid insufflation may lead to vagal reflex that may cause **bradycardia** and **hypotension**.

The **first step** to be done if these complications occur is to

→ **Deflate abdomen** (to reverse the effect).

Key 47

Painful foot at the first metatarsal joint

+ X-ray showing **Well-defined 'punched-out' erosions** with sclerotic margins

+ **Alcohol** drinker

→ **Gout (gouty arthritis)**.

Alcohol is a RF for Gout.

The x-ray features are consisting with gout.

Key 48

Important Points on Gout (Gouty Arthritis): ↑ Uric Acid

◙ **The main features of gout**

√ Pain: this is often very significant

√ Swelling

√ Erythema

◙ Around 70% of first presentations affect:

→ The first metatarsophalangeal joint (of the big toe).

Other commonly affected joints include: ankle, wrist, knee.

◙ **Important Exam Hints:**

○ An antihypertensive and diuretic medication "Thiazide Like Diuretic" such as bendroflumethiazide can cause Gout.

○ A diuretic used in Heart Failure → Loop diuretic (Furosemide) can cause Gout.

○ Also, Drinking Too Much Alcohol can cause Gout!

○ X-ray of the painful red swollen joint

→ Well-defined 'punched-out' erosions with sclerotic margins

◙ **In short: Some Important Risk Factors of Gout**

→ Thiazide-like diuretics ▌Loop diuretics: Furosemide ▌Excessive alcohol intake.

◙ **Investigations of gout** → Synovial fluid aspiration and analysis. (important).

Important → If there is no fever, send joint aspirate for "microscopy" not for culture.

"Caution! Do not pick (Serum Uric Acid) as it is usually normal or low in the acute stage! It can be measured 4-6 weeks after the acute stage has been passed".

So, in acute attack, Serum uric acid is not the answer as an investigation!

◙ **Management of gout:**

√ If the patient is presenting with **acute attack** "important":

→ **First line** → NSAIDs (eg, Ibuprofen, Naproxen) ▌2nd → Colchicine.

√ For **long-term** management of gout (after 2 weeks of acute attack)

→ Allopurinol "with NSAIDs and Colchicine coverage"

◙ **Radiological features of gout:**

• Joint effusion is (early sign).

• Well-defined 'punched-out' erosions with sclerotic margins in a juxta-articular distribution, often with overhanging edges

- Relative preservation of joint space until late disease
- Eccentric erosions
- No periarticular osteopenia (in contrast to rheumatoid arthritis)
- Soft tissue tophi may be seen

◙ **Caution**:

Gout does not only affect the big toe; it can also affect Knee and others. Whenever you see "bendroflumethiazide" or another RF as heavy alcohol along with painful, tender, swollen joint:

Think → Gout → Synovial fluid aspiration → NSAIDs or Colchicine for acute attack.

Key 49

Extravasation of IV fluids

Sometimes, while receiving IV solution, extravasation may occur causing swollen boggy and cool limb.

- **Causes:**

√ The cannula pierces the wall of the vessel or is drawn back of the vessel after fixation.

√ Administering fluids at a high rate → ↑ IV pressure → Leakage (extravasation).

- **Management:**

√ If the administered fluid is not vesicant (eg, normal saline, Hartmann solution)

→ **Stop the IV fluid, remove the cannula, and lift the arm** (to help reabsorption).

Re-insert the cannula in a different vein, a different limb.

√ If the administered fluid is vesicant (eg, chemotherapy), they may cause tissue damage (in the form of blistering and ulceration). It could also lead to tissue necrosis. This might need specialized clinical intervention.

Key 50

Failure of Intubation

- Sometimes, intubation fails. We can detect intubation failure by using **capnography**.
- Capnography provides breath-to-breath ventilation data.
- The normal **end-tidal CO2 (ETCO2)** on capnography is **35-45** mm Hg.
- If severely less, it indicates **failed intubation** (eg, wrong place eg, in oesophagus).

This is an emergency which requires

→ Removal of the endotracheal tube, insertion of a laryngeal mask or re-intubation.

Otherwise, remove tube, initiate face mask ventilation (to preserve ventilation).

Key 51

• 90% of breast cancer in **Men** (Males) are Estrogen Receptors Positive (ER +ve).

Thus, receiving → **Tamoxifen** as an adjunctive therapy is helpful.

Important Notes on Tamoxifen

√ It is a [Selective estrogen receptor modulator -SERM-]

√ It is used in the **treatment** of **Breast cancer**.

√ It is helpful after **breast cancer in men** who have **positive estrogen receptors** (around 90% of men with breast cancer).

√ **It increases the risk of Endometrial carcinoma**.

√ It prevents bone loss (guards against osteoporosis).

♦ Some studies support that when giving **tamoxifen** to a breast cancer patient, giving (**Bisphosphonates**) helps reduce the risk of bone metastasis.

♦ In patients who take Tamoxifen, the **most important alarming symptom** would be → **Vaginal bleeding** (as it ↑ risk of endometrial carcinoma).

NOTE:

Post-menopausal women with breast cancer who have high risk of recurrence **OR** those with Lymph Node metastasise are given → Bisphosphonates as an adjunctive therapy after surgery.

Key 52

Post-dural puncture headache (PDPH)

• PDPH is a complication of **spinal anaesthesia** (due to meningeal puncture).

• **Headache** (PDPG) is considered **the most common** side-effect of epidural anaesthesia given in labour.

• It occurs in 1% of patients following spinal anaesthesia but it is the most common serious complication after spinal anaesthesia.

• It usually starts to appear within the first 48 hours after a meningeal puncture (eg, after spinal anaesthesia eg, epidural block).

• **The criteria of the post-dural puncture headache:**

√ Severe, throbbing, tension.

√ Frontal and occipital.

√ Extends to neck (stiffness/ tension in neck).

√ (↑) with upright position and when elevate the neck from a supine position.

√ (↓) with supine position (lying flat).

√ Sometimes associated with nausea and photophobia.

◙ **No** imaging or investigations are needed unless there are other symptoms that suggest a different diagnosis. (PDPH is a diagnosis of exclusion).

◙ **Management of post-dural puncture headache (PDPH)**

• **Reassure and observe**.

• **Simple measures**:

√ Simple analgesia (paracetamol, NSAIDs, Codeine).

√ **Good hydration**.

√ Drinking **caffeinated** drinks.

√ Avoid triggering positions.

√ Epidural patch (if the headache is very severe and persistent despite all measures).

Key 53

Remember to Stop These Medications Before Surgery

Angiotensin receptor blockers [ARBs] (eg, Candesartan, Losartan) and **ACE inhibitors** (eg, lisinopril) may cause **severe hypotension** after induction of general anaesthesia or during surgery.

- Therefore → Stope **ARBs** (eg, losartan, candesartan) 24 hours before surgery.
- Also → stope **ACE inhibitors** (eg, lisinopril, candesartan) 24 hours before surgery.

Key 54

- **In patients with opioid toxicity:**

If they have very **low** respiratory rate ± high paCO2 with low pH (resp. acidosis):

√ The first step is → Bag mask ventilation attached to supplemental oxygen.

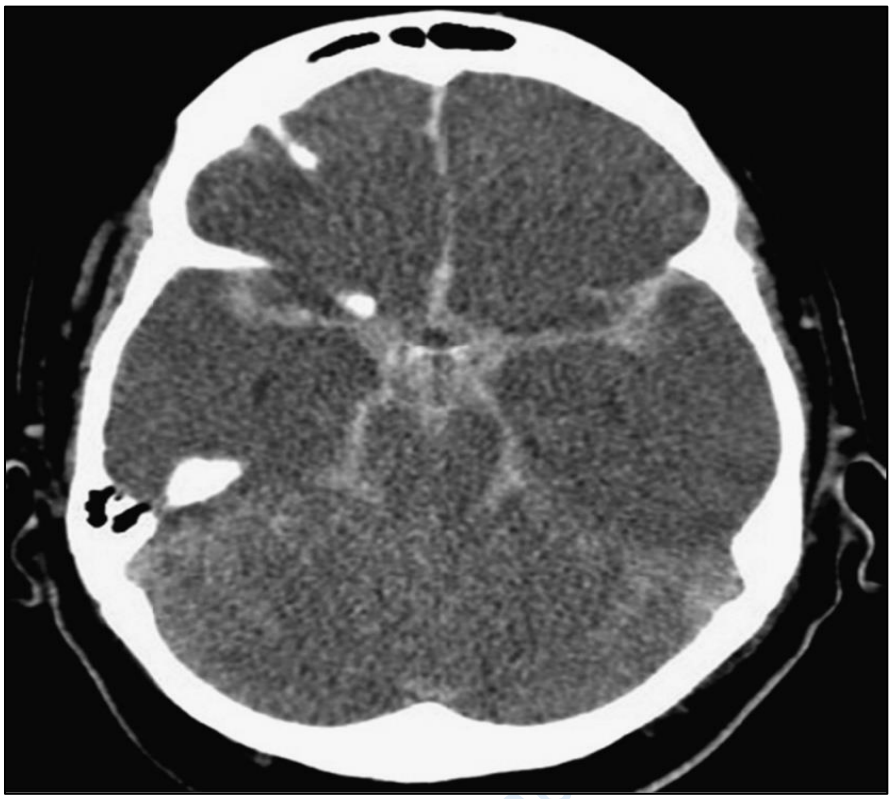
√ Followed by → IV Naloxone.

Example: after surgery, a patient was given IV morphine. Shortly after, he developed respiratory depression and his ABG shows respiratory acidosis (↑paCO2, ↓pH).

First step → Bag mask ventilation. **Followed and accompanied by** → IV naloxone.

Key 55

A 52-year-old man presents to the ER department complaining of severe headache with vomiting for one day. He also has photophobia and nick stiffness. His GCS is 14/15. A slice of his CT scan head is shown below:



What is the most likely diagnosis?

→ Subarachnoid hemorrhage (SAH).

• Severe "worst" headache, vomiting, photophobia, neck stiffness are features commonly seen in SAH. The patient would benefit from **nimodipine** (a **CCB**).

• In SAH: CT scan show **hyperdense** areas (**white** color = blood) in the **basal cisterns**.

Key 56

A man was found unconscious and rescued from a burning building. He is tachypnic, tachycardic, his BP is 105/70 mmHg and his O2 saturation is 96% on room air. His external appearance does not show burns or injuries. He has vesicular breathing and his airway is patent. He is now confused. What is the most appropriate management?

→ **High flow oxygen (via tight-fitting mask)**.

- The likely Dx here is carbon monoxide poisoning (was found unconscious in a burning building, tachypnic, tachycardic).
- He is **now confused**, not unconscious. If he is unconscious, then intubate).

◙ The Management of Carbon Monoxide Poisoning:

- If **Conscious** → 100% O2 via a tight-fitting face mask with an O2 reservoir.
  Another valid answer → High flow oxygen.
- If **Unconscious** → Intubate and Ventilate with IPPV (Intermittent Positive-Pressure Ventilation) on 100% O2.

Note: if the patient is **confused** but **still conscious** → **high flow O2 via tight-fitting mask** (NOT intubation)!

Careful! If the patient is **hypotensive** (**SBP < 100**) and **Unconscious** → **Intubation + IPPV 100% O2**

Key 57

◙ Surgical removal of breast lumps (**lumpectomy**) is usually done under **General Anaesthesia**.

◙ **Before general anaesthesia and surgery, the patient should be fasting:**

- **Not eating** for at least **6 hours** before surgery.
- **Not drinking** clear fluids for at least **2 hours** before surgery.

Example:

A woman is scheduled to undergo surgical removal of suspicious breast lump at 10 am. The last time she ate was at 6 am as she had her breakfast with a cup of coffee. She then continued to have clear fluids until 9 am.

→ Postpone the surgery until 12 pm in the same day.

This way, the last time she ate was 6 hours before the surgery, and the last time she drank was more than 2 hours before the surgery.

Key 58

Febrile Neutropenia (Neutropenic Sepsis)

Patient is unwell + Recent chemotherapy

→ Start IV Antibiotics IMMEDIATELY -IV Tazocin is started empirically-!

Still unwell after 4-5 days? → fungal infection investigation + Add IV Antifungals

Febrile Neutropenia "Neutropenic Sepsis"

From its name: Febrile → **Fever** | **Neutropenia** → **Low Neutrophils**.

√ Absolute **Neutrophil** count **≤ 0.5** X 10^9/L (Normal: 2-7.5 X 10^9/L)

√ **Fever** **(≥ 38.5**°C) or **2** consecutive temperatures of **(≥ 38.0°C)**

- It occurs mainly after initiating **chemotherapy** in malignancy patients.

(Chemotherapy → BM suppression → ↓ Blood Cells Production).

- Another cause → within 1-year of Bone Marrow transplantation.

◙ How to manage? "Important"

- **Start empirical IV antibiotics IMMEDIATELY**!
- Start empirical → **IV Tazocin (Tazobactam + Piperacillin)**.
- After 48 hours, if the patient is still febrile and/or neutropenic

→ Alternative antibiotic: **Meropenem** ± Vancomycin.

• After **4-6 days**, if the patient is still **unwell**

→ **Investigate for fungal infection**

(Sometimes, the answer would be: **Add IV Antifungal**).

In Summary:

In a patient with neutropenic sepsis, if 4-6 days have passed and the patient is still febrile and/or neutropenic despite receiving adequate antibiotics

→ **Investigate for fungal infections**

Another correct answer → **Continue the antibiotics and Add IV Antifungals**

Important,

Sometimes, the neutrophil count will not be given in a stem. **Regardless of that, start IV antibiotics in all patients with recent chemotherapy who have fever and feel unwell** (suspected Neutropenic Sepsis).

♦ Remember that Tumour Lysis Syndrome can also develop after initiating of chemotherapy.

Tumor Lysis Syndrome → **UK Pc**

HyperUricemia (↑ **Uric Acid** "Also called **serum Urate**) → Gout.

HyperKalemia (↑ K^+ "**Potassium**")

HyperPhosphatemia (↑ **Phosphate**)

Hypocalcemia. (↓ **Calcium**).

√ It occurs mainly in Leukemia (Especially **ALL**) and Lymphoma (Particularly **Burkitt's Lymphoma**) after initiating **Chemotherapy**.

√ Chemotherapy, Radiotherapy, Surgery → **Rapid Lysis of Tumour Cells** → Excessive amounts of Uric acid "Urate", Potassium and Phosphate are released into the blood.

Example:

A 56-year-old woman presents with 3 days of feeling unwell, diarrhea, and fever. She had recently had chemotherapy for liver cancer. She also had taken trimethoprim for urinary tract infection for the past 3 days. She has generalised abdominal tenderness. Her heart rate is 98 bpm, blood pressure is normal, temperature is 39.4 degrees, respiratory rate is 24 breaths/minute.

→ Start empirical broad-spectrum IV antibiotics

- Suspected **neutropenic sepsis** after recent chemotherapy
- **Unwell** + **Fever** after **recent chemotherapy** → Immediate empirical **IV antibiotics** while waiting for blood reports.

Key 59

Important Note:

Acoustic neuroma (vestibular schwannoma) is usually commonly associated with **neurofibromatosis type 2**.

Remember this association:

Acoustic neuroma **WITH** *Neurofibromatosis*

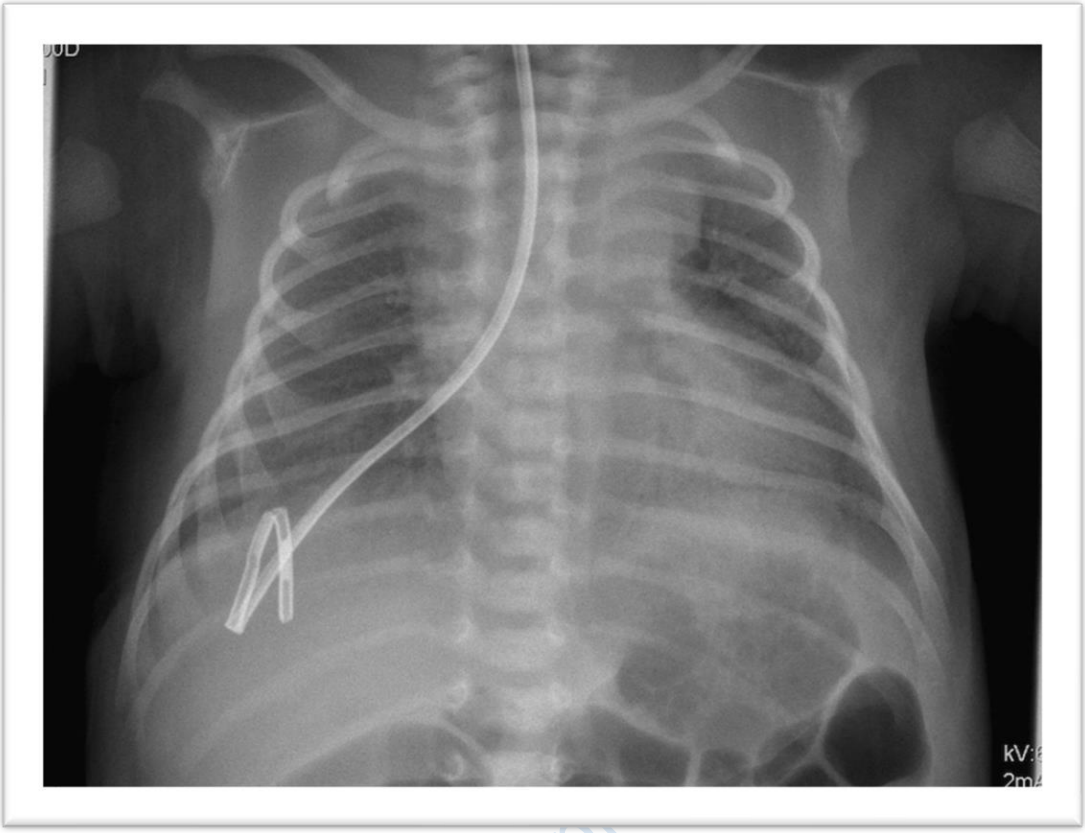
Example:

A man with bilateral sensorineural hearing loss + Vertigo + Tinnitus + Hx of neurofibromatosis type 2

→ **Acoustic neuroma** → do **MRI cerebellopontine angle** (or **MRI brain**).

Key 60

After a road traffic accident, the patient had a nasogastric tube inserted (NGT). However, there is no aspirates of the nasogastric tube. The patient is short of breath. X-ray is shown below. What is your explanation and what should be done?



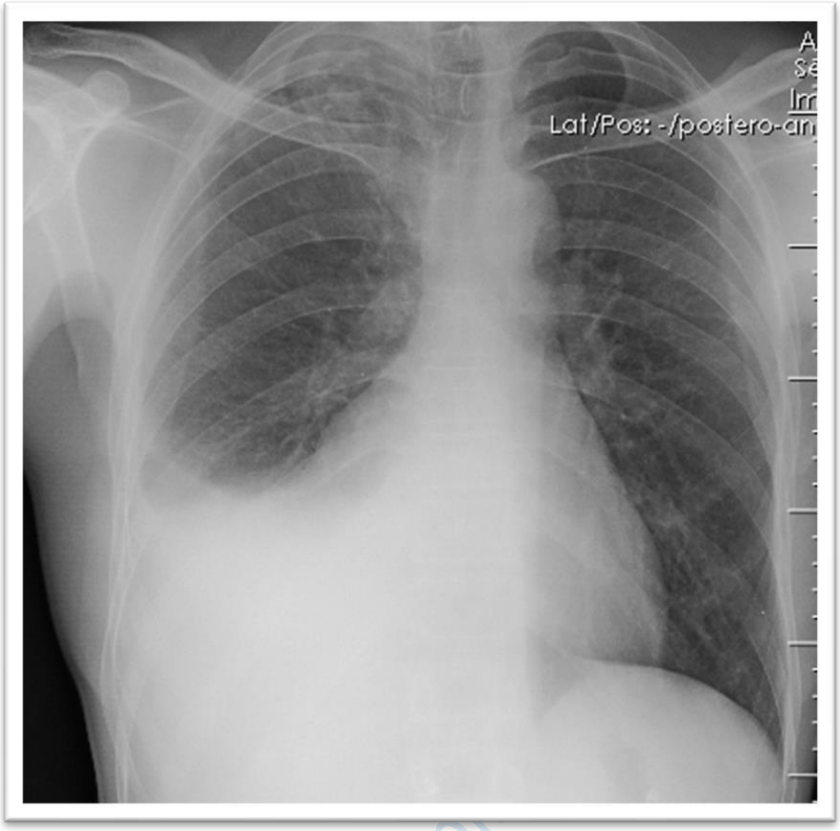
This is a rare case of:

→ Malpositioned NGT into the right bronchus and lung instead of stomach.

→ **Remove this NGT and insert a new one as this one is not in the stomach**.

Key 61

A 55 YO man has been complaining of cough, shortness of breath, left chest pain and fever for 3 weeks. His temperature is 38.5, his RR is 25 and his O2 sat is 92%. ECG shows normal sinus rhythm. There are crepitations and reduced air entry on the left side. Percussion is dull on the left. His WBCs count is elevated. Chest X-ray shows:



The likely Dx based on this X-ray → **Pleural Effusion**.

As there is fever → there is likely an infection caused parapneumonic effusion.

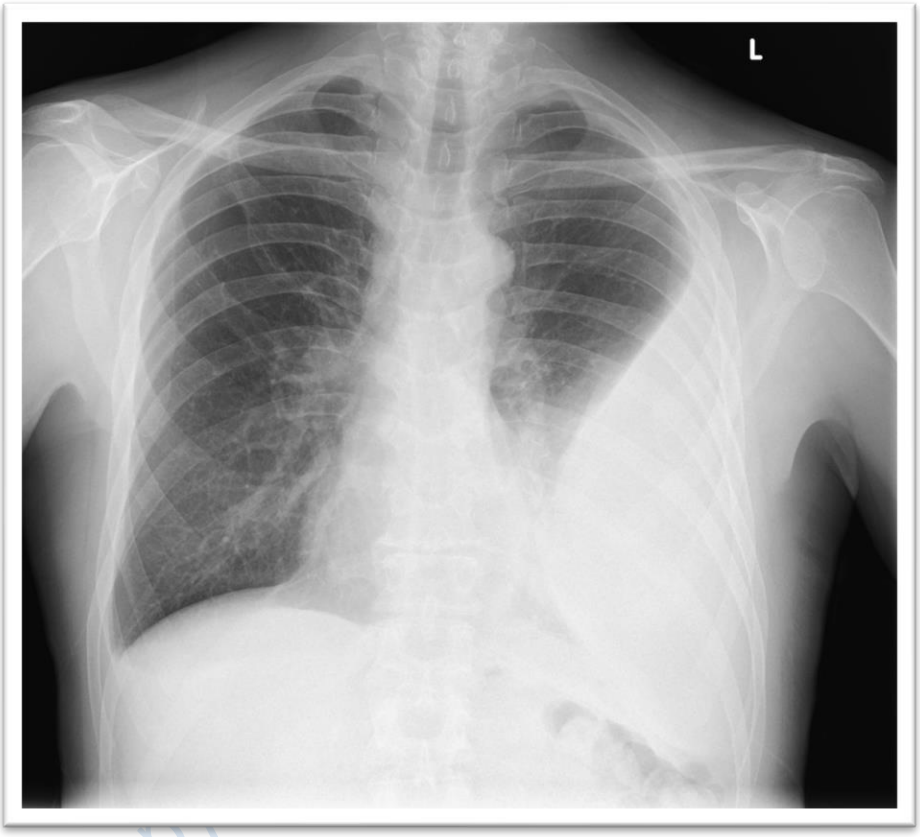
In other words, this is a **pleural effusion** caused by pneumonia.

Key 62

◙ Chest pain + SOB + Fever +

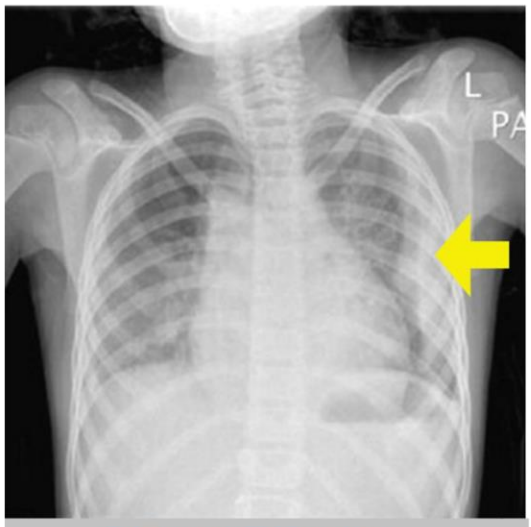
Productive cough + High WBCs + ↓ air entry + dullness:

Pneumonia → **Pleural effusion**, and when inflammatory response occurs in this effusion → **Empyema** develops. (*Look at the X-ray to differentiate*).



Empyema

Complications of Pneumonia on Chest X-ray



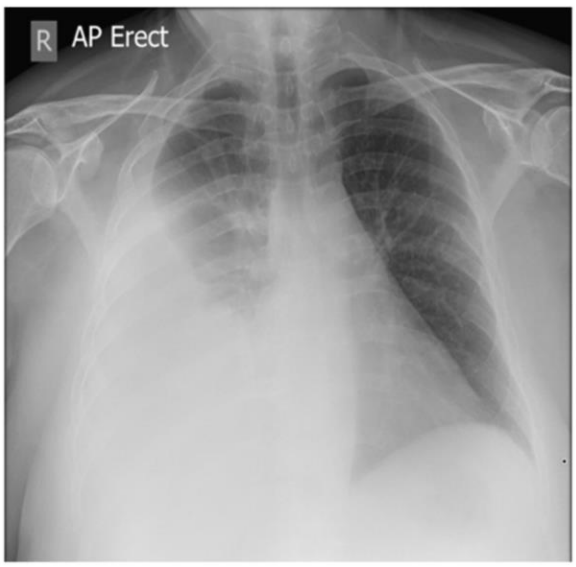
Pleural Effusion

- Appears as white density within lung field
- If not loculated, will layer out on lateral decubitus film

Empyema

- Appears as solid white consolidate that blunts the costophrenic angle
- May not layer out on lateral decubitus

Left Empyema.



R Pleural Effusion with meniscus sign.

Key 63

An elderly woman had femur fractur and surgery 2 weeks ago presents today with breathlessness, tachypnea (↑RR), tachycardia (↑PR), hypoxemia (↓pO2, ↓O2 saturation).

What is most likely: pulmonary Fat Embolism, or pulmonary Venous Thromboembolism (VTE)?

• Both Pulmonary **venous** thromboembolism and Pulmonary **fat** embolism can present with: Dyspnea (SOB), Tachypnea, Tachycardia, Hypoxemia.

• Although **fat embolism** is more associated with **femur fracture (long bone fractures, or orthopedic procedures)**, it typically develops **24-72 hours after fracture/procedure**, not after 2 weeks!

• Other distinguishing features to know: In **fat embolism**, many cases develop **petechial rash**. Also, oliguria/ anuria.

This lady is immobile for 2 weeks, presents with breathlessness, tachycardia and tachypnea of sudden onset.

This is most likely a case of → Venous thromboembolism (VTE).

In Short:

After femur fracture, Immobility, if a patient develops dyspnea (breathlessness), tachypnea, tachycardia, hypoxemia:

√ **24-72 hours** after femur fracture → more likely **Fat** Embolism.

√ **Weeks** after femur fracture (ie, prolonged immobility) → more likely **VTE**.

Key 64

Paget's Disease of the breast and nipple

◙ A rare breast malignancy.

◙ With a better prognosis than the infiltrating ductal carcinoma.

◙ **Features**:

♠ **Dry skin** around the areola resembling **eczema** with **scales + erosions.**

♠ **Itching (Pruritis)** in the area.

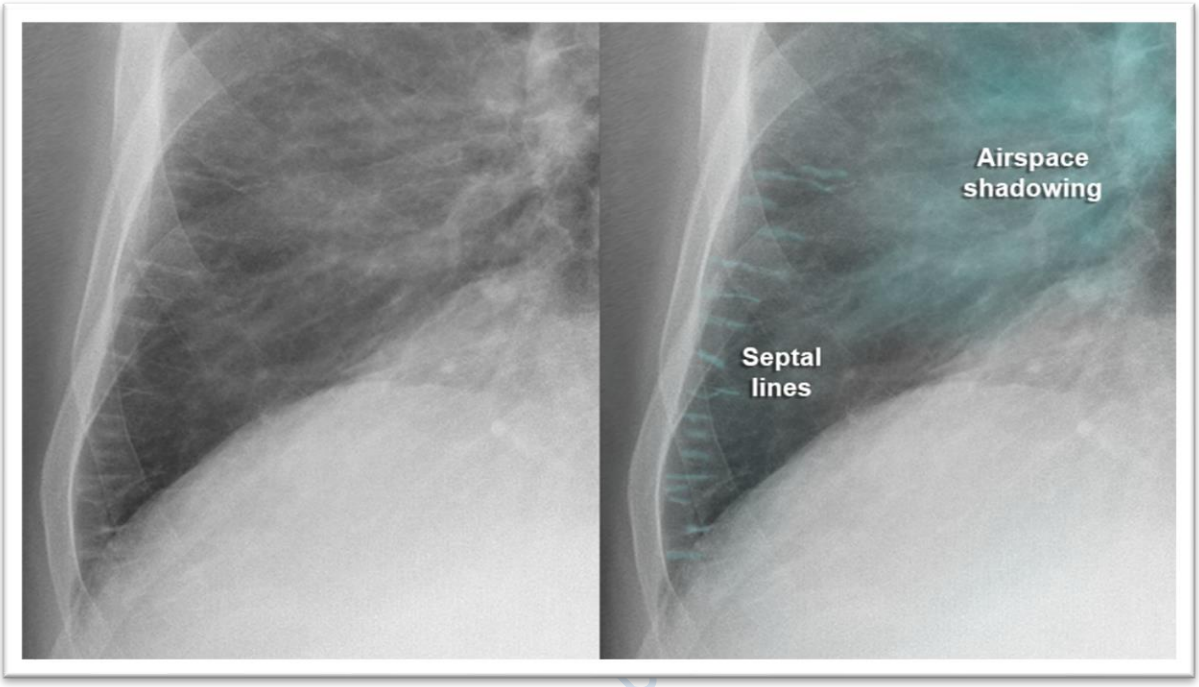
♠ **Discharge** per nipple sometimes **bloody. (Not always).**

♠ **Ulcerated** and/or **inverted nipple**.

◙ Diagnosis → **Punch Biopsy**.

Paget's disease of breast and nipple may mimic eczema in skin appearance. However, you should consider paget disease first.

Key 65



- Kindly be aware of these septal lines (**Kerely B lines**).
- They are seen in **pulmonary edema**.
- One important cause of pulmonary edema is **heart failure**.

(A scenario with this picture might be given in the exam for an old man who presents with tachypnea, low O2 saturation and shortness of breath. You might see permanent pacemaker in the X-ray as a hint that the patient has chronic heart failure).

Management of acute pulmonary edema? (**important**).

1) Sit the patient up → **Give O2** (airm for ≥ 95%, or > 90% if he has COPD).

2) Give glyceryl trinitrates (**GTN**) 2 sublingual puffs.

3) Give 40 mg of IV -slowly- **Furosemide** (important) **√**.

Key 66

Remember The MRI Findings (Important):

◙ OLD man + **GDU** (**G**ait abnormality/ **D**ementia -behaviour changes-/ **U**rine urgency ± incontinence) = ***Wet***, ***Wobbly***, ***Wacky Grandpa.***

CT/MRI → Enlarged ventricles mostly WITHOUT cortical atrophy.

→ NPH (**Normal Pressure Hydrocephalus**).

◙ **Forgetful elderly** (forget to lock doors, forget birthdays, forget names of people and places), **easily getting lost (Disorientation)**, unable to do simple tasks (eg, cooking).

If CT/MRI is done, it would show enlarged ventricles mostly WITH cortical atrophy.

→ **Alzheimer's disease**.

Key 67

What is the most common side effect of epidural anaesthesia given in labour?

→ **Headache** (post-dural puncture headache PDPH)

Key 68

• The most appropriate action for women with a new breast lump at first

→ Ultrasound (if < 40 years old). ▌Mammogram (if > 40 years old).

• Following U/S or Mammogram → Fine needle aspiration (possible).

However, if there is → Core needle biopsy in the options, pick it as it is superior to FNAC. **Core Needle Biopsy** is the preferred diagnostic tool for breast lumps, whether benign or suspicious. It provides a **larger tissue sample** for histological examination, preserving the architecture of the tissue, which is crucial for an accurate diagnosis.

• If the breast lump is suspicious → Urgent 2-week wait referral to a breast clinic.

Key 69

Differential Diagnoses of Breast Lesions

1 ◙ Painful, fluctuating mass over the breast or near the nipple

→ **Nipple Abscess** (Pus Collection).

2 ◙ Brown/ Green/ Coloured discharge per Nipple → **Duct Ectasia**.

3 ◙ Hx of Trauma to the Breast (redness or bruises around the lump) + firm, round, solitary and localized lump.

→ **Fat Necrosis**.

4 ◙ Bleeding per nipple in 20-40 YO ♀ ± skin changes

→ **Ductal Papilloma** → Galactogram.

5 ◙ Bleeding discharge per nipple in an Old woman with eczema-like changes in the nipple ± areola ± Ulcers

→ **Paget's disease** (Malignant) → Punch Biopsy

6 ◙ Firm, non-tender, mobile mass in a breast of a young ♀ (15-30 YO)

→ **Fibroadenoma** → Clinical + Ultrasound + FNA

7 ◙ Breast pain (Mastalgia), ↑ breast size, lumpiness (nodularity) of the breast, ♀ in the reproductive age ± tend to appear just before or during menstrual cycle and disappear after it → **Fibroadenosis**.

8 ◙ Fixed, irregular, hard, painless lump ± nipple retraction ± fixed to skin (Peau d'orange) or muscle (+) Local fixed, firm axillary LNs.

→ **Breast Cancer** → Core biopsy

9 ◙ Offensive yellow discharge from an area near the nipple + Hx of Abscess near this area → **Ductal Fistula (Mamillary Fistula)**.

10 ◙ Prolonged Redness around the areola. Hx of using antibiotics which improved symptoms slightly. Greenish discharge per nipple. ± nipple retraction ± small lump around the nipple is felt.

→ **Periductal mastitis**. (Commonly young age, smoking is a risk factor, treated with antibiotics, if left untreated it may develop into an abscess that needs drainage by fine needle).

11 ◙ Persistent nipple discharge that is non-bloody and occasionally milky or serous fluid. It is spontaneous. No breast masses. No Nipple retraction. No skin changes.

→ **Mamillary duct fistula** (abnormal connection between lactiferous ducts of the breast and skin surface → leads to spontaneous nipple discharge that is not purulent nor bloody. It can appear as a milky or serous fluid).

Key 70

• What is the preferred anti-emetic agent in (**chemotherapy-induced vomiting**)?

→ **Ondansetron**.

• What is the preferred anti-emetic agent in patients with increased **ICP**?

→ **Cyclizine**.

Key 71

How to deal with patients on warfarin who are going for surgery?

• Stop warfarin 5 days before the day of surgery.

• **If** the patient has a **high risk of thromboembolism**, after stopping warfarin, you need to **start heparin bridging**.

Examples of high-risk of thromboembolism (who need LMW heparin bridging):

√ Patients with mechanical heart valve.

√ Recent TIA (transient ischemic attack).

√ Atrial fibrillation with a previous stroke.

√ Venous thromboemolitic event in the last 3 months.

Anticoagulation may be resumed on the same evening of the surgery day or in the following day. Heparing bridging is subject to local guidleines.

Key 72

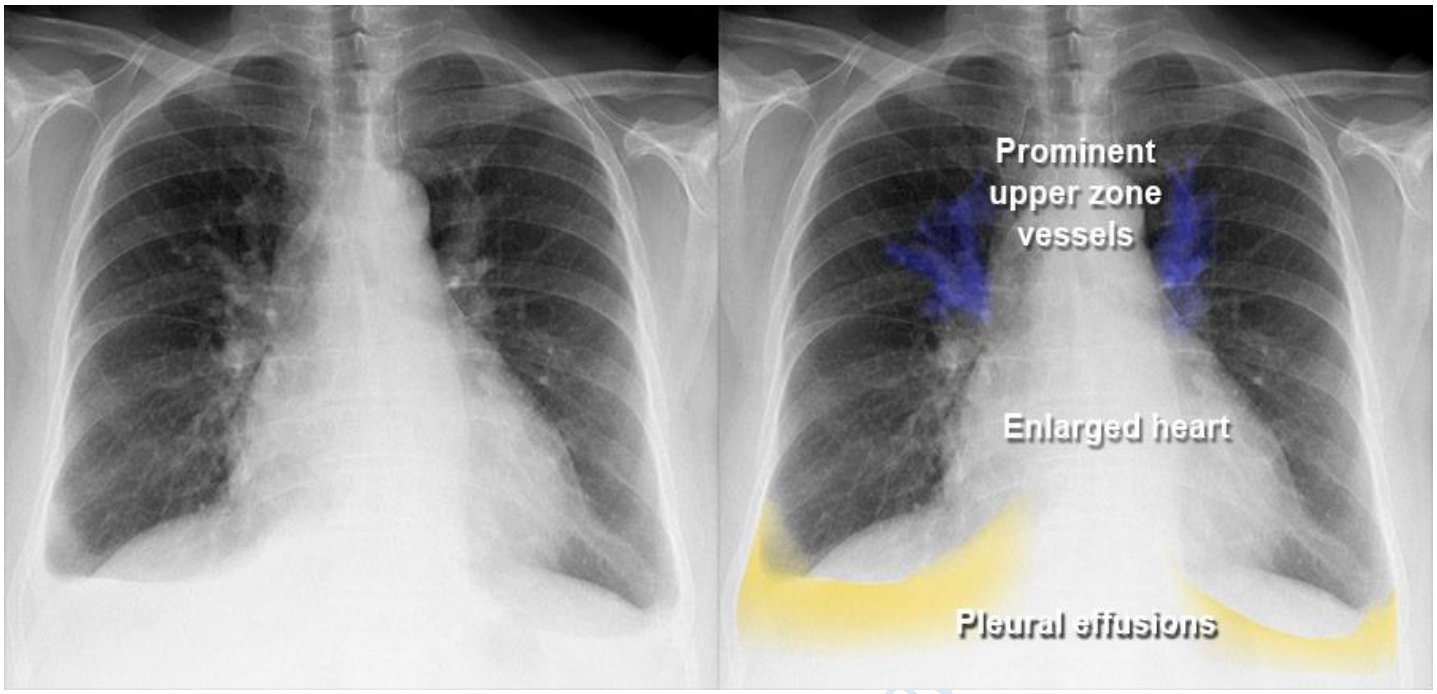
Before surgery, what is the mostly recommended investigation?

• For any patient, for the fear of significant bleeding during major surgery (eg, in hip arthroplasty), haemoglobin (**full blood count FBC**) should be known preoperatively.

• For patients **> 65** years old and those with any systemic disease, **ECG** is also recommended preoperatively.

Key 73

Look at this image for a patient with **congestive heart failure** (that has led to a small **pleural effusion**) and presents with bilateral basal crepitions and shortness of breath:



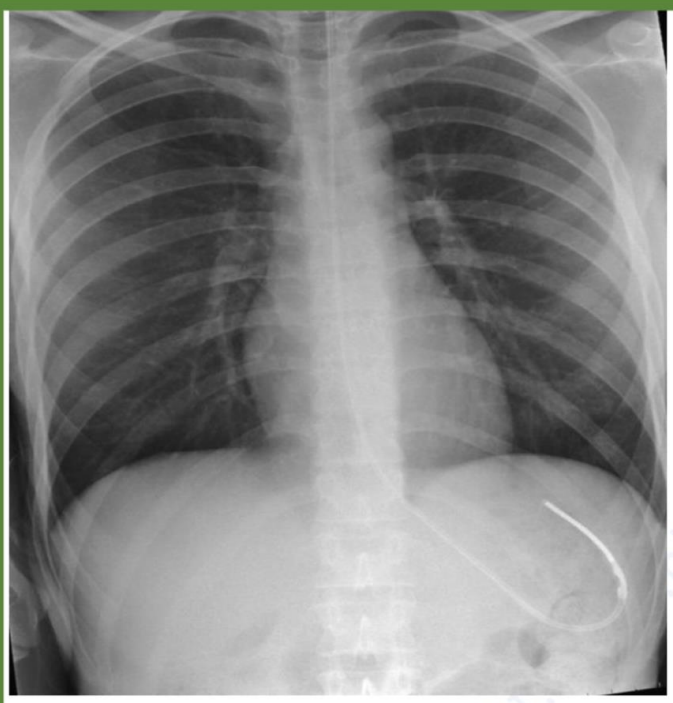
Key 74

The most accurate method to deremine if nasogastric tube (NGT) is correctly placed is:

→ **Chest-X Ray**.

Malpositioned NGT passes through the right main bronchus to the lower lobe of the right lung. (Note the bent of the NGT at the right bronchus site)

→ Remove the NGT and Insert a new one.



Correctly positioned NGT (Nasogastric Tube):

√ It crosses the diaphragm in the midline.

√ Its tip is visible below the left hemidiaphragm.

Next step → Start nasogastric feeding.

Key 75

While a radiology consultant reviews a chest X-ray, he finds important findings that were not mentioned in the report. What should he do?

→ **Add an addendum to the report with the time and date.**

Key 76

What is the next step to be done if a deficiency or an area of improvement is identified in an audit?

→ **Implement sustainable changes and then re-audit.**

Key 77

Notes on Preoperative Investigations:

◙ For healthy individuals, < 65 YO, who are undergoing a low-risk operation (eg, herniorrhaphy) → routine pre-operative investigations are **NOT** indicated.

◙ **Before surgery:**

Request the following if the patient is > 65 YO or has any systemic diseases:

√ **ECG**.

√ **Full blood count (FBC)**.

√ **Renal profile**.

Key 78

Quick Note:

Before general anaesthesia, patients can drink clear fluids (eg, water, squash, tea, coffee without milk) up to 2 hours before anaesthesia (ie, acceptable).

Key 79

Sudden onset of: Fever, Drooling of Saliva, Stridor, Muffled voice, Cough

√ **Suspect** → Acute epiglottitis.

√ **Manage** → Airway maintenance: Call **anaesthetist** (for potential **intubation** /tracheostomy) and immediate ICU admission (for the fear of airway compromise)

√ **Then** → Start **IV broad spectrum antibiotics** initially (there are bacterial causes for acute epiglottitis; however, remember that it is also caused by H. Influenza type B).

Key 80

What is the most sensitive and specific modality for the following cases?

- **Spinal cord metastasis** (eg, from breast cancer).
- **Spinal cord compression**.
- **Causa equina syndrome**.

Some symptoms for these cases → Hx of breast/ prostate cancer, progressive lower limb weakness, urinary retention or incontinence, bowel incontinence, diminished sensation below the level of umbilicus, low back pain.

→ **MRI of the whole spine with contrast**.

Key 81

A patient with COPD on long-term oxygen therapy (LTOT) is scheduled for transurethral resection of bladder (TURB). Knowing that his pulmonary function tests show moderate to severe impairment, which type of anaesthesia is appropriate for this patient?

→ Spinal anaesthesia.

- As his respiratory functions are impaired (due to severe COPD), general anaesthesia should be avoided as it can cause respiratory complications eg, depression.
- Spinal anaesthesia is a form of regional anaesthesia that involves injecting anaesthetics near the spinal nerves in the lower back. Therefore, it provides effective pain control for the surgeries that involve the lower abdomen and pelvis.

Key 82

Intercostalbrachial Neuralgia

√ Sharp, burning, or aching pain that radiates from axilla to the medial aspect of the upper arm.

√ It usually results from surgery (eg, breast surgery, axillary nodes dissection), trauma, or other pathologies (eg, herpes zoster, thoracic outlet syndrome) that affect the **intercostalbrachial** nerves.

√ The usually involved dermatome is → (**T2**).

Example:

A 55-year-old woman had mastectomy and axillary lymph node dissection for breast cancer a few months ago. She presents with a complaint of persistent burning pain and sensory loss along the inner aspect of the upper arm and axilla. What is the most likely diagnosis?

→ Intercostalbrachial neuralgia.

Key 83

Angiosarcoma:

- A rare and aggressive cancer that arises from the endothelial cells lining the blood vessels.
- It can occur in any part of the body but commonly associated with breast tissues especially following exposure to radiation therapy.
- It starts as a blue/purple bruise like lesion with irregular borders.
- It can arise on top of the scar following mastectomy.

Key 84

Quick Reminder:

An ovarian mass that appears on ultrasound as a homogenous:

Ground glass (or) **Chocolate cyst**:

Think → Ovarian Endometrioma.

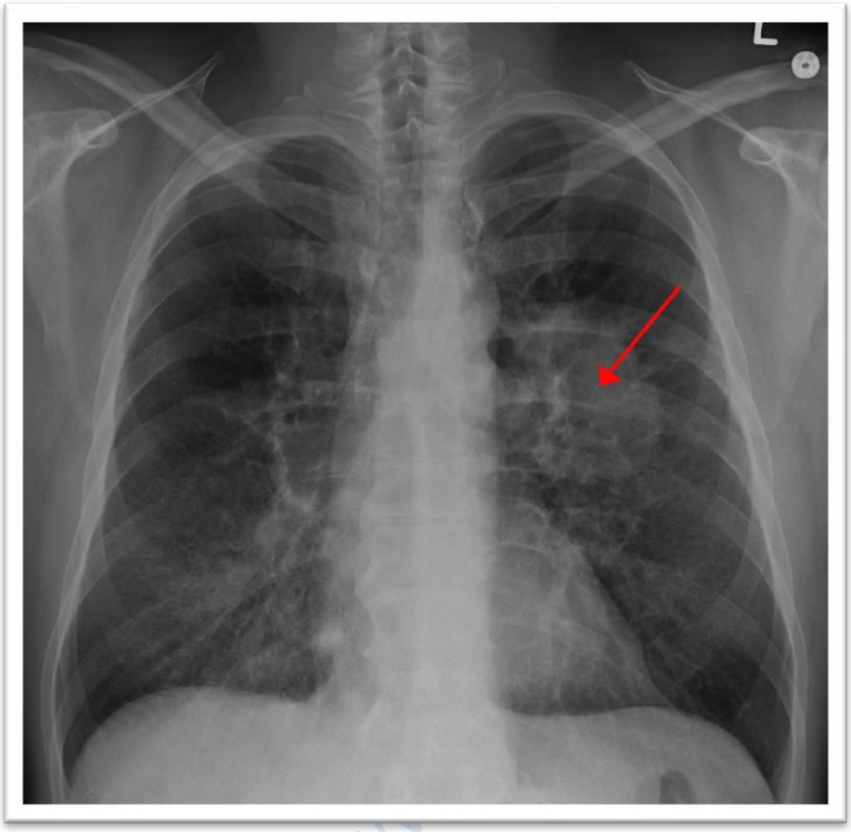
(It is a subtype of endometriosis where endometrial-like tissues grow within the ovaries forming cysts filled with dark old blood).

Key 85

X-ray: A well circumscribed mass in the upper lobe.

Clinically: Old + Significant smoking history + Cough + Weight loss

Think → Bronchial carcinoma.



Key 86

A 50-year-old woman is brought to the emergency department by paramedics after being rescued from a burning building. She was found unconscious with soot around her mouth and nose. She has sustained burns to her face, neck, and upper torso, estimated to be 10% TBSA. On examination, she is unresponsive to voice or pain. Her breathing is shallow and labored, with soot in her oropharynx. Which of the following is the most appropriate immediate management for this patient?

A. Cricothyroidotomy.

B. Escharotomy of the chest wall.

C. Tracheal intubation.

D. Fluid resuscitation with Hartmann's solution.

E. High-flow oxygen via a non-rebreather mask.

Answer:

The most appropriate immediate management for this patient is

→ C. Tracheal intubation.

Detailed Explanation:

The patient has been involved in a fire and presents with significant signs of inhalation injury (soot around mouth and nose, soot in oropharynx) and respiratory distress (shallow, labored breathing). She is also unresponsive to voice or pain, indicating a compromised airway and potentially severe smoke inhalation injury.

Rationale:

Airway Protection: The presence of soot around the mouth and in the oropharynx, along with shallow and labored breathing, suggests significant inhalation injury. This can lead to airway edema and obstruction. Immediate tracheal intubation is necessary to secure the airway before swelling makes it more difficult.

Respiratory Support: Tracheal intubation ensures that the patient can receive adequate ventilation and oxygenation. High-flow oxygen via a non-rebreather mask (option E) is beneficial but not sufficient in this scenario due to the risk of airway obstruction and the patient's unresponsiveness.

Prevention of Further Complications: Early intubation can prevent the worsening of airway edema, which can complicate intubation if delayed.

Why Not the Other Options?

A. Cricothyroidotomy: This is an emergency procedure for severe airway obstruction when intubation is not possible. In this case, early tracheal intubation is preferable if feasible.

B. Escharotomy of the chest wall: This is indicated for circumferential burns causing restrictive chest wall movement, which is not described here.

D. Fluid resuscitation with Hartmann's solution: This is important for burn patients but is secondary to securing the airway in immediate management.

E. High-flow oxygen via a non-rebreather mask: While providing oxygen is crucial, intubation is required to secure the airway and provide effective ventilation in this critical scenario.

Thus, tracheal intubation is the immediate priority to manage the airway and ensure adequate oxygenation.

When would the option E (High-flow oxygen via a non-rebreather mask) be a valid option?

Option E (High-flow oxygen via a non-rebreather mask) would be a valid option in scenarios where the patient is experiencing respiratory distress but does not have signs of significant airway obstruction or compromise. Here are specific conditions when this option would be appropriate:

Conscious and Responsive Patients: If the patient is conscious, alert, and able to maintain their airway but is experiencing respiratory distress due to smoke inhalation or other causes.

No Signs of Severe Airway Obstruction: When there is no evidence of severe airway obstruction (e.g., no significant soot in the oropharynx, no stridor, and no signs of airway edema).

Initial Management: In the early stages of assessment and management of a patient with suspected inhalation injury, high-flow oxygen via a non-rebreather mask can provide adequate oxygenation while preparing for further evaluation and potential intubation if the situation worsens.

Mild to Moderate Respiratory Distress: Patients with mild to moderate respiratory distress, where oxygenation can be adequately maintained with non-invasive methods, and there is no immediate threat of airway compromise.

Example Scenario:

A 45-year-old woman is brought to the emergency department by paramedics after being in a building fire. She is conscious and alert but complains of difficulty breathing. She has soot around her mouth and nose but is able to speak in full sentences. Her breathing is rapid but not labored, and there are no signs of significant airway obstruction. On examination, her oxygen saturation is 88%.

Most appropriate immediate management:

→ High-flow oxygen via a non-rebreather mask.

Rationale:

• Adequate Oxygenation: High-flow oxygen via a non-rebreather mask can quickly improve her oxygen saturation.

• Maintaining Airway: Since she is conscious and able to maintain her airway, intubation is not immediately necessary.

• Monitoring: This allows for continuous monitoring and assessment. If her condition deteriorates or signs of airway compromise develop, then escalation to intubation can be promptly performed.

• This approach ensures that the patient receives the necessary oxygen while keeping invasive procedures reserved for when they become absolutely necessary.

In Short: The Management of Carbon Monoxide Poisoning:

- If **Conscious/ Dizzy** → 100% O2 via a tight-fitting face mask with an O2 reservoir. √

  Another valid answer → High flow oxygen. √
- If **Unconscious** → Intubate and Ventilate with IPPV (Intermittent Positive-Pressure Ventilation) on 100% O2.

Key 87

Monitoring Side Effects of Lorazepam in Elderly Patients with Seizures

◙ Scenario:

Patient: 71-year-old woman

Condition: Tonic-clonic seizure

Treatment: Intravenous lorazepam

◙ Key Monitoring Focus: Most Likely Side Effect: Respiratory depression.

◙ Summary:

Lorazepam is effective for controlling seizures but can cause respiratory depression.

Continuous monitoring of respiratory function is crucial, especially in elderly patients.

Key 88

Quick Important Note:

• Angiotensin-converting enzyme (**ACE**) inhibitors and angiotensin II receptor blockers (**ARBs**) are commonly withheld (stopped) 24 hours prior to surgery due to the risk of intraoperative hypotension.

• ACE inhibitors work by blocking the conversion of angiotensin I to angiotensin II, leading to vasodilation and reduced blood pressure.

• During surgery, patients can experience significant blood pressure fluctuations due to anesthesia and surgical stress. Continuing ACE inhibitors can exacerbate this issue, leading to severe hypotension that can be difficult to manage intraoperatively.

Key 89

Management of Secondary Pneumothorax in a COPD Patient

Case Summary:

• Patient: 73-year-old man.

• History: Chronic Obstructive Pulmonary Disease (**COPD**).

• Presentation: Sudden onset of shortness of breath and left-sided chest pain after severe coughing. Uses accessory muscles to breathe.

• Vitals: Respiratory rate 28 bpm, heart rate 110 bpm, BP 135/85 mmHg, O2 saturation 88% on 2L nasal cannula.

• Examination: Hyperresonance to percussion, reduced breath sounds on left side.

• Chest X-ray: Left-sided **pneumothorax** with a **2.5 cm** rim of air at the hilum.

◙ Most Appropriate Immediate Management → Insert a chest drain.

◙ **Rationale:**

Secondary Pneumothorax: Occurs in the presence of underlying lung disease like COPD.

Severity: Given the size of the pneumothorax and the patient's acute distress, immediate intervention is necessary.

Chest Drain: Allows for re-expansion of the lung and stabilization of the patient's respiratory function.

◙ Why Not Other Options?

• Needle Aspiration: More suited for primary pneumothorax or smaller secondary pneumothoraces (1-2 cm).

• Increased Oxygen Flow/NIV: Can worsen the pneumothorax due to positive pressure.

• Antibiotics: Not immediately necessary unless there is an infection.

◙ Conclusion:

√ For a patient with COPD presenting with a significant secondary pneumothorax (**>2cm**), the insertion of a **chest drain** is the most appropriate immediate intervention to re-expand the lung and stabilize respiratory function.

√ If it was 1-2 cm → Needle Aspiration.

Management of Pneumothorax: Summary Points

◙ Primary Pneumothorax:

- **2 cm or Less** → Conservative management.
- **More than 2 cm** → Needle aspiration (same approach as tension pneumothorax).

◙ **Secondary Pneumothorax:**

- **Less than 1 cm** → Conservative management.
- **1-2 cm** → Needle aspiration.
- **More than 2 cm** → Chest drain.

◙ **General Guidelines:**

- **Conservative Management**: Suitable for smaller pneumothoraces without significant symptoms.
- **Needle Aspiration**: First-line for larger primary pneumothoraces and moderate secondary pneumothoraces.
- **Chest Drain**: Required for large secondary pneumothoraces or when needle aspiration is not sufficient.

Key 90

Scenario on A Breast Lesion:

A 40-year-old woman attends the breast clinic complaining of recurrent painful swellings in her right breast, each followed by spontaneous discharge of pus. She first noticed these symptoms about three months ago. On examination, there is a tender mass in the upper outer quadrant of the right breast. There is a small, puckered opening on the skin surface directly above the mass. Which of the following is the most likely diagnosis?

A. Breast cyst.

B. Inflammatory breast cancer.

C. Mastitis.

D. Mammary duct ectasia.

E. Mammary duct fistula

Answer → E. Mammary duct fistula.

Explanation:

Key Points:

1. **Presentation**:
   - **Recurrent Painful Swellings**: The patient reports recurrent episodes of painful swellings in the breast, which are indicative of repeated infections or abscess formation.
   - **Discharge of Pus**: Spontaneous discharge of pus suggests an ongoing infection and potential development of a fistula.
   - **Tender Mass**: A tender mass in the breast is consistent with an abscess or infected area.
   - **Puckered Opening**: The presence of a small, puckered opening on the skin surface above the mass strongly suggests a fistulous tract.
2. **Pathophysiology**:

- **Mammary Duct Fistula**: Often results from recurrent infections or abscesses in the breast tissue, leading to the formation of a tract that connects the infected duct to the skin surface.

Differential Diagnoses:

- **A. Breast cyst**: Typically presents as a smooth, mobile, non-tender mass without recurrent infections or pus discharge.
- **B. Inflammatory breast cancer**: Usually presents with erythema, edema (peau d'orange), and rapid onset of breast enlargement, without a history of pus discharge.
- **C. Mastitis**: Commonly presents with localized pain, swelling, redness, and warmth, often in lactating women, but does not usually cause a persistent fistula.
- **D. Mammary duct ectasia**: Can cause nipple discharge and a palpable mass but typically presents with greenish or blackish discharge rather than pus and without a fistula.

Given the patient's symptoms of recurrent infections, pus discharge, and the physical finding of a puckered opening, a mammary duct fistula is the most likely diagnosis.

Key 91

Perioperative Management of Insulin Therapy in Patients Undergoing A Minor Surgery Addison's Disease

A 60-year-old woman with type 1 diabetes is scheduled for elective knee surgery, planned for 2 pm. She is currently on a regimen of basal and short-acting insulin. She typically takes her short-acting insulin with breakfast, lunch, and dinner. Her blood glucose levels are generally well controlled. What is the most appropriate management of her short-acting insulin on the day of surgery?

A) Skip the lunch dose of short-acting insulin.
B) Administer the usual dose of short-acting insulin with breakfast and lunch.
C) Skip the dinner dose of short-acting insulin.
D) Administer half the usual dose of short-acting insulin with lunch only.
E) Stop short-acting insulin and convert to variable rate intravenous insulin infusion (VRIII).

Answer → A.

A. Skip the lunch dose of short-acting insulin.

1. **Rationale for Skipping the Lunch Dose**:
   - **Timing of Surgery**: The surgery is planned for 2 pm, meaning the patient will likely miss lunch. Administering the lunch dose of short-acting insulin could lead to hypoglycemia since the patient will not be eating.

- **Fasting Consideration**: Patients are typically required to fast before surgery to reduce the risk of aspiration during anesthesia. Hence, it is prudent to skip the lunch dose of short-acting insulin to avoid hypoglycemia during the fasting period.

Why Other Options are Less Appropriate:

- **B. Administer the usual dose of short-acting insulin with breakfast and lunch**:
  - This could result in hypoglycemia since the patient will be fasting and not consuming lunch.
- **C. Skip the dinner dose of short-acting insulin**:
  - The dinner dose is not relevant to the perioperative period since the surgery is scheduled for 2 pm. This option does not address the management of insulin during the critical fasting period before surgery.
- **D. Administer half the usual dose of short-acting insulin with lunch only**:
  - Even a reduced dose of insulin at lunch could still pose a risk of hypoglycemia because the patient will not be eating lunch.
- **E. Stop short-acting insulin and convert to variable rate intravenous insulin infusion (VRIII)**:
  - VRIII (previously known as a sliding scale) is typically reserved for more complex cases, such as major surgeries requiring prolonged fasting or for patients with poorly controlled diabetes. Since this patient has well-controlled diabetes and the surgery is relatively minor, skipping the lunch dose is a simpler and safer approach.

By skipping the lunch dose of short-acting insulin, the patient minimizes the risk of hypoglycemia during the fasting period required before her afternoon surgery.

Key 92

Perioperative Management of Steroid Therapy in Patients with Addison's Disease

A 47-year-old man with a known history of primary adrenal insufficiency (Addison's disease) is scheduled for an elective laparoscopic appendectomy under general anesthesia. He is currently managed on hydrocortisone 20 mg in the morning and 10 mg in the afternoon, as well as fludrocortisone 0.1 mg daily. His recent blood tests showed sodium 139 mmol/L (135-145) and potassium 4.1 mmol/L (3.5 - 5). What is the most appropriate management of his steroid therapy?

Options:

A. Increase the dose of fludrocortisone.

B. Increase the dose of both hydrocortisone and fludrocortisone.

C. Half the dose of both hydrocortisone and fludrocortisone.

D. No change in his current steroid regimen is required.

E. Increase the dose of hydrocortisone.

Correct Answer → E. Increase the dose of hydrocortisone.

• For patients with Addison's disease who are undergoing surgery, it is essential to boost their glucocorticoid levels to manage the increased stress from surgery and anesthesia, thus preventing an adrenal crisis. Normally, the body increases cortisol production during stressful situations eg, surgery. However, individuals with Addison's disease are unable to do this because their adrenal glands are not functioning properly. As a result, they need additional steroid supplementation from external sources.

• For this man with Addison's disease undergoing elective laparoscopic appendectomy, the most appropriate management involves:

√ Administering a 100 mg IV bolus of hydrocortisone at the induction of anesthesia.

This ensures that the patient has adequate cortisol levels to manage the physiological stress of surgery.

√ Providing continuous IV hydrocortisone at 200 mg over 24 hours until the patient can take oral hydrocortisone.

This maintains adequate cortisol levels during the perioperative period.

√ Doubling the dose of hydrocortisone by mouth and tapering back to the appropriate usual maintenance dose (in most cases, this occurs within 48 hours).

This allows the patient to handle the ongoing stress response post-surgery.

√ Keeping the fludrocortisone dose unchanged.

Fludrocortisone primarily manages electrolyte balance and blood pressure, which are not significantly impacted by surgical stress.

Summary:

In surgical settings, patients with Addison's disease need increased glucocorticoid (hydrocortisone) coverage to prevent an adrenal crisis due to their inability to naturally boost cortisol production. This involves **administering higher doses of hydrocortisone intravenously and then doubling the oral dose post-surgery**, while **keeping the fludrocortisone dose unchanged**.

Why do we keep fludrocortisone dose unchanged?

Fludrocortisone primarily manages electrolyte balance and blood pressure, which are not significantly impacted by surgical stress. The focus during surgery is on ensuring adequate cortisol levels to manage the body's increased stress response. The standard fludrocortisone dose continues to effectively manage blood pressure and electrolyte balance without the need for adjustment. Therefore, the glucocorticoid (hydrocortisone) dose is increased to address the stress response, while the fludrocortisone dose remains the same.

Key 93

On Radiology:

A 72-year-old woman presents to the emergency department with a two-month history of progressive shortness of breath and a persistent dry cough. She reports losing 8 kilograms unintentionally over the same period. She has no history of fever or chest pain. Her past medical history includes a 50-year history of smoking one pack per day. On physical examination, she is mildly dyspneic but stable. Auscultation of

her lungs reveals decreased breath sounds in the left upper lung field. An X-ray is performed and shows a mass in the left upper lung.

Question:

What is the most appropriate next step in management?

Options:

A. Arrange for immediate hospital admission.

B. Refer via the two-week wait respiratory pathway.

C. Prescribe antibiotics.

D. Refer via the two-week wait ear, nose, and throat pathway.

E. Refer to the respiratory clinic routinely.

Answer → B. Refer via the two-week wait respiratory pathway.

Explanation:

The patient presents with significant symptoms and findings that raise the suspicion of a serious underlying condition, such as lung cancer. The key points in this scenario are:

Clinical Symptoms:

Progressive shortness of breath over two months.

Persistent dry cough.

Unintentional weight loss (8 kg).

Risk Factors:

A 50-year history of smoking one pack per day, which significantly increases the risk for lung cancer.

Radiographic Findings:

The X-ray shows a mass in the left upper lung field.

• Given the combination of symptoms, risk factors, and radiographic findings, there is a high suspicion of lung cancer.

• The two-week wait referral pathway is designed for cases where there is a suspicion of cancer, to ensure that patients are seen and investigated urgently.

Other Options:

A. Arrange for immediate hospital admission: While the patient has significant symptoms, they are hemodynamically stable. Immediate admission is not necessary at this stage.

C. Prescribe antibiotics: There is no evidence of an infection (e.g., no fever, productive cough), and antibiotics would not address the underlying issue.

D. Refer via the two-week wait ear, nose, and throat pathway: This is not appropriate as the symptoms and findings are respiratory in nature.

E. Refer to the respiratory clinic routinely: A routine referral would delay necessary investigations and potential treatment.

In summary, the most appropriate next step is to refer the patient via the two-week wait respiratory pathway to ensure timely investigation and management of a potential malignancy.

Key 94

Key Points on Breast Lump Evaluation and Management

- **Core Needle Biopsy** is the preferred diagnostic tool for breast lumps, whether **benign** or **suspicious**. It provides a **larger tissue sample** for histological examination, preserving the architecture of the tissue, which is crucial for an accurate diagnosis. It is **superior to fine needle aspiration** (FNAC) even in cases of **suspected benign lesions** like **fibroadenoma**.
- **Fine Needle Aspiration Cytology (FNAC)** is less reliable than core biopsy because it only provides **cellular material**, which limits its ability to differentiate between **benign** and **malignant** lesions and does not preserve tissue structure.
- **Urgent Referral to a breast** clinic is necessary for lumps with concerning features (e.g., irregular, firm masses). This follows **NICE guidelines** recommending a **two-week wait referral** for suspected breast cancer. The breast clinic will arrange appropriate **imaging** (ultrasound, mammogram) and **biopsy**.
- **Phyllodes Tumour**: A **rare breast tumour** that can mimic fibroadenomas on imaging but has the potential to be **malignant**. It can range from **benign** to **borderline** or **malignant**, so **core biopsy** is crucial for an accurate diagnosis.
- **Core Biopsy** is essential for confirming the diagnosis of benign conditions like **fibroadenoma** and ruling out other conditions that mimic it, such as **phyllodes**

tumour. Core biopsy provides the most definitive tissue sample for diagnosis compared to FNAC.

- **Excisional Biopsy** is typically reserved for cases where **previous biopsies** (e.g., core biopsy or FNAC) are inconclusive.
- **Breast Imaging** (e.g., ultrasound, mammogram, MRI):
    - **Ultrasound** is preferred in **younger women** (**< 40 years old**) due to denser breast tissue.
    - **Mammogram** is preferred in **women > 40 years old** because it provides better visualisation in less dense breast tissue.
- **NICE guidelines** stress the importance of quick and accurate assessment of breast lumps to avoid delayed diagnosis of potentially malignant conditions.

Key 95

Key Points on Preoperative Management:

Key Points on Absolute Contraindications to Elective Surgery:

1. **Recent Myocardial Infarction (MI)**: Elective surgery should be postponed for at least **6 months** following an MI to reduce the risk of perioperative cardiac complications.
2. **Recent Pulmonary Embolism (PE)**: Surgery should be delayed for at least **3 months** after a pulmonary embolism to allow for adequate anticoagulation and patient stabilization.
3. **Uncontrolled Heart Failure**: Surgery should be delayed until **heart failure is stabilized** or controlled for a minimum of **4-6 weeks** prior to the elective procedure.
4. **Severe Aortic Stenosis**: Surgery should not proceed in patients with **severe symptomatic aortic stenosis** until after appropriate **aortic valve intervention**, which should occur at least **3 months** before elective surgery, unless urgent treatment is required.
5. **Uncontrolled Hypertension**: Surgery should be postponed if the patient has **severe uncontrolled hypertension** (e.g., systolic BP > 180 mmHg or diastolic BP > 110 mmHg) due to the increased risk of **perioperative cardiovascular complications**, such as stroke, myocardial infarction, or bleeding.

6. **Active Infection**: Elective surgery should be delayed in the presence of **active infection** (e.g., sepsis, cellulitis) until the infection is treated and controlled. Operating on a patient with an active infection increases the risk of **wound infections, sepsis, and poor postoperative recovery**.

Key Points on Preoperative Investigations for a Healthy Patient:

- For healthy patients with no significant medical history, it is still **standard practice** to perform a **full blood count (FBC)** for all patients before major surgery, such as **knee arthroplasty**, to check for any undetected anaemia or abnormalities.
- **NICE guidelines** recommend a **full blood count** before major surgery to evaluate for potential blood loss risks.
- **ECG** is recommended for patients **over 65 years old** or those with systemic diseases to check for underlying cardiovascular conditions.
- **Chest X-ray** is **no longer routinely recommended** as a preoperative test unless there are specific indications, such as **chronic lung disease** or recent respiratory infections.
